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(Hymenoptera : Ichneumonidae)

By

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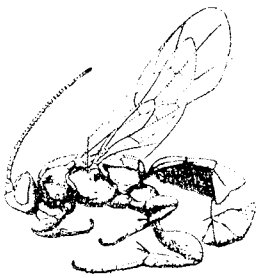

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TAIPEI, TAIWAN, CHINA

THE TAIWAN METOPIINAE

(Hymenoptera : Ichneumonidae)

by

SHUI-CHEN CHIU

Senior Entomologist, Department of Applied Zoology
Taiwan Agricultural Research Institute, Taipei, Taiwan, CHINA.

This revision includes all the species of the subfamily Metopiinae known from Taiwan. The material studied is in the insect collection of the Taiwan Agricultural Research Institute, the collection of Henry and Marjorie TOWNES, and the collection of the United States National Museum. A few of the species already recorded from Taiwan are not represented in these collections, or at least could not be identified, and in these cases it has only been possible to refer to their original descriptions. Thirty-six species and one subspecies included in seven genera of this subfamily are now known from Taiwan, of which nineteen species and one subspecies are described as new in this paper. The types of the new species are in the Taiwan Agricultural Research Institute, Taipei.

This study was begun at the Museum of Zoology, University of Michigan, Ann Arbor, U. S. A. in 1957, while the writer was participating in the technical assistance program of the International Cooperation Administration. It was continued and completed in the Taiwan Agricultural Research Institute with the financial assistance of the National Council on Science Development.

Definition of Subfamily Metopiinae

The most useful characters for distinguishing this subfamily from other Ichneumonidae are as follows:

Clypeus not separated from the face; face usually very convex and protuberant, except that in the genus *Metopius* the face has a large, flat shield-shaped area; upper margin of face produced medially over or between the bases of antennae as a triangular process; scape less than twice as long as wide; areolet triangular or absent, rarely pentagonal; usually only one distinguishable trochanter on front and middle legs; abdomen usually depressed, with the third and fourth segments wider than long; the spiracle of first abdominal segment at or in front the middle; general size small to medium. All species are parasites of Lepidoptera.

Acknowledgments

The writer wishes to express her sincere thanks to Dr. Henry TOWNES for his

continual encouragement, instruction and for the use of his collection and notes on UCHIDA's types; to Miss L. M. WALKLEY for kindly loaning the Taiwan Metopiinae specimens at the United States National Museum; to Dr. T. H. HUBBELL, Director of the Museum of Zoology, University of Michigan, for the use of various facilities and equipment; to the National Council on Science Development for financial assistance in additional studies; to Dr. Setsuya MOMOI for his help with the identification of *Hypsicera formosana*; and to Mr. K. C. WU for help in making part of illustrations.

Key to Genera of Taiwan Metopiinae

1. Face occupied largely by a flat or slightly concave shield-shaped area surrounded by a strong carina (fig. 2, h); middle tibia with only one spur ..... **Metopius** (p. 5)
   Face entirely convex; middle tibia with two spurs except in male of *Aceratapsis* 2
2. Abdominal epipleura vestigial; scutellum with lateral carina expended (fig. 1, e)... **Aceratapsis** (p. 2)
   Abdominal epipleura wide; scutellum not as above 3
3. Frons with a semicircular, compressed process which connects with the median dorsal triangular process of face 4
   Frons without such a process, or if so, never connected with the triangular process of face 5
4. Temple in dorsal view curving gradually toward occipital carina; first abdominal segment with its spiracle located behind basal 1/3 (fig. 4, h)..... **Colpotrochia** (p. 18)
   Temple in dorsal view sharply sloping toward occipital carina; first abdominal segment with its spiracle located before or near the basal 1/3 (fig. 3, l)..... **Triclistus** (p. 12)
5. First abdominal tergite in profile basally obliquely truncate (fig. 5, d); metapleurum with rather dense hairs; abdominal tergite II with a pair of median, longitudinal carinae (fig. 5, c)..... **Drepanoctonus** (p. 23)
   First abdominal tergite in profile basally gradually sloped down; metapleurum without hair or with only a few along its upper margin; abdominal tergite II without any median carina..... 6
6. Spurs of middle tibia approximately equal in length ..... **Hypsicera** (p. 24)
   Spurs of middle tibia distinctly unequal in length..... **Exochus** (p. 32)

Genus **Aceratapsis** UCHIDA

Cerataspis UCHIDA, 1934. Trans. Sapporo Nat. Hist. Soc., 13: 275, figs. 1-4. preoccupied by *Cerataspis* GRAY, 1847.

Aceratapsis UCHIDA, 1934. Ins. Matsumura., 9: 23. (new name for *Cerataspis* UCHIDA, not GRAY).

Temple very narrow; face gently convex, slanting forward from mouth to near

base of antenna; interantennal process narrowly triangular, its dorsally produced as a polished, impunctate and grooved projection which curves down and connects with the slightly convex frontal process (fig. 1, d); frons with dense, fine punctures; occiput flat, densely striato-punctate, occipital carina present above; pronotum polished, with a few strong, short striae except for dense, moderately coarse punctures on dorsal 0.3; mesopleurum with dense, moderately coarse punctures; metapleurum finely and sparsely punctate, with a few distinct striae on dorso-apically; scutellum transverse, rectangular, its lateral area expanded and produced backward as a prominent angle, with coarse, umbilicate punctures; propodeum punctate or rugoso-punctate; propodeal carinae strong; combined areola and basal area short and broad, costula present, areolet present and large, 2nd recurrent straight; front and middle legs slender; middle tibia with two spurs of subequal length, tarsal claws pectinate; area of baso-lateral corner of abdominal tergites II–V concavely triangular, but in tergite VI crescent shaped; epipleura of abdominal segments vestigial; tergites I–III and sometimes IV with a pair of strong, longitudinal, median carinae; tergite I broadly, erectly rectangular, in profile basally gently curved downward (fig. 1, f), its spiracle located near the basal 0.4; tergite VI globose.

Key to the Taiwan Species of Aceraspis

Tergite IV with two short, longitudinal, median carinae at base; combined basal area, areola and petiolar area rugose (fig. 1, b); postscutellum black; hind tibia entirely black or dark brown ..... *formosana* CUSHMAN

Tergite IV without a pair of longitudinal, median carinae; combined basal area, areola and petiolar area not rugose (fig. 1, e); postscutellum fulvous, basal half of hind tibia yellow, its extreme base black..... *cruralis*, sp. n.

1. Aceraspis formosana CUSHMAN

Fig. 1, a–b.

Aceraspis formosana CUSHMAN, 1937. Arb. morph. taxon. Ent. Berlin-Dahlem, 4 (4): 291, ♀, ♂.

Type ♀: Shuisheliao (Suisharyo), Formosa (Berlin-Friedrichshagen).

♂: Forewing 6.3 mm. long. Head about 0.75 as deep as wide, in profile as fig. 1, a; face with distinct umbilicate punctures; lateral ocellus separated from eye by about 1.1 its diameter; antenna broken; propodeum coarsely, irregularly rugoso-punctate (fig. 1, b); hind femur about 4.5 as long as high; tergites I and II with a pair of parallel, longitudinal, median carinae, the area between them distinctly, irregularly rugose; tergite III with a pair of very slightly convergent, longitudinal, median carinae that weaken toward apex, the area between them rugose; tergite IV with a pair of longitudinal, median carinae presents only the basal 0.45.

Black. Palpi, scape in front, upper 0.67 of combined clypeus and face, subtegular ridge and scutellum, fulvous; front leg yellowish, the coxa except in front, trochanter, basal 0.67 of femur, and tarsal segments dark brown; middle leg dark brown or

fuscous, with apex of femur, tibia and tarsi a little lighter; hind leg black; tergite I black, with apical third (except black carinae) dark brownish or fuscous, the latero-apical area lighter than apical area between median carinae; tergite II fulvous, with baso-central area, basal, lateral and apical margins fuscous or blackish, median carinae black; tergite III fulvous, basal and apical margins slightly darker, basal median area and basal half of median carinae blackish or fuscous, apical half of carinae somewhat lighter; tergite IV fulvous, with basal and apical margins slightly darker, a small basal, median area blackish or fuscous, median carinae blackish in basal half, brownish apically; tergite V blackish or fuscous with approximately the apical third fulvous; tergite VI black.

♀: Differs from the male in having basally more extensive yellow color on abdominal segments.

Specimens 2♀♀, 1♂: Fenchihu (Funkiko) 1♀ (10 VI 1920, TOYODA); Shuisheliao (Shuisharyo), 1♂ (Allotype) (X 1911, H. SAUTER) in U.S. National Museum; without locality, 1♀.

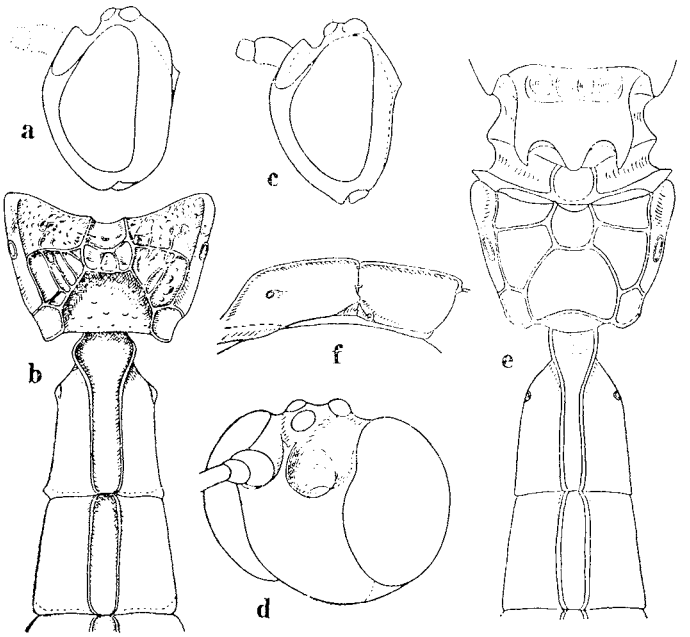

Fig. 1. *Aceraspis*. Head, lateral view, *formosana* (a), *cruralis* sp. n. (c), fronto- and dorso-lateral view, *cruralis* sp. n. (d); propodeum and abdominal tergites I & II, dorsal view, *formosana* (b), *cruralis* sp. n., scutellum also (e); abdominal tergites I & II, lateral view, *cruralis* sp. n. (f).

2. Aceratаspis cruralis, new species

Fig. 1, c-f.

♀: Forewing about 7 mm. long. Head about 0.75 as deep as wide, in profile as fig. 1, c; face with densely striato-umbilicate punctures; lateral ocellus separated from eye by about 0.75 its diameter; first flagellar segment 1.3 as long as the second; propodeum centrally almost impunctate, laterally with dense and fine punctures (fig. 1, e); hind femur about 4.2 as long as high; tergite I with two parallel, longitudinal, median carinae, the area between them weakly punctate; tergite II with 3 longitudinal, median carinae, the median one obscure with apical half absent, the area between them with few distinct punctures; tergite III with a pair of longitudinal, median carinae which is uniformly strong, mostly parallel but slightly divergent toward apex of the tergite, the area between them distinctly punctate, apical half with a less strong, median carina; tergite IV without longitudinal, median carina.

Black. Palpi, scape (except front side black), upper 0.6 of combined face and clypeus, tegula, stripe on subtegular ridge, scutellum and postscutellum, yellow; front and middle legs yellow except that femora and tarsi are more or less brownish and outer side of middle coxa brown; hind leg black, the first trochanter brownish; basal half of tibia yellow with extreme base black; abdominal tergites ferruginous except for the base of tergite I, extreme base of tergite IV, basal half of tergite V, and tergite VI, blackish to black; wings light brown, pterostigma black.

Holotype ♀: Chuifen (Oiwake), Wushe (Musha) 2 IX 1940, J. SONAN.

The name "*cruralis*" refers to the banded tibia.

Genus **Metopius** PANZER

Metopius PANZER, 1806. Kritische Revision der Insektenfaune Deutschlands, 2: 78.
Type: *Sphex vespoides* SCOPOLI, designated by VIERECK, 1912.

Head subhexagonal with moderately coarse punctures on face and clypeus, and with finer punctures on frons and occiput; occiput behind the lateral ocellus flattened in the Taiwan species, usually with a small concavity laterad of lateral ocellus; mandible with one or two teeth; face with an elevated shield-shaped area, centrally slightly concave and strongly carinate around the edge; interantennal process triangular, punctured, entirely concave or flat and with a very strong median carina; frontal process compressed, connected with interantennal process ventrally by a ridge (fig. 2, h); pronotum with lower part polished and striate, but upper part punctate; metapleurum moderately coarsely punctured; scutellum quadrate, usually with coarse and dense punctures and strong lateral carinae, its lateral area expanded laterally and backward produced as horn-like projection; areolet present and large, 2nd recurrent straight; front and middle femora slender; front and middle tibiae with only one spur; hind tibia with two spurs; tarsal claws simple in the Taiwan species; abdominal tergites with very coarse punctures which are larger and deeper on the basal portion of each

fuscous, with apex of femur, tibia and tarsi a little lighter; hind leg black; tergite I black, with apical third (except black carinae) dark brownish or fuscous, the latero-apical area lighter than apical area between median carinae; tergite II fulvous, with baso-central area, basal, lateral and apical margins fuscous or blackish, median carinae black; tergite III fulvous, basal and apical margins slightly darker, basal median area and basal half of median carinae blackish or fuscous, apical half of carinae somewhat lighter; tergite IV fulvous, with basal and apical margins slightly darker, a small basal, median area blackish or fuscous, median carinae blackish in basal half, brownish apically; tergite V blackish or fuscous with approximately the apical third fulvous; tergite VI black.

♀: Differs from the male in having basally more extensive yellow color on abdominal segments.

Specimens 2♀♀, 1♂: Fenchihu (Funkiko) 1♂ (10 VI 1920, TOYODA); Shuisheliao (Shuisharyo), 1♂ (Allotype) (X 1911, H. SAUTER) in U.S. National Museum; without locality, 1♀.

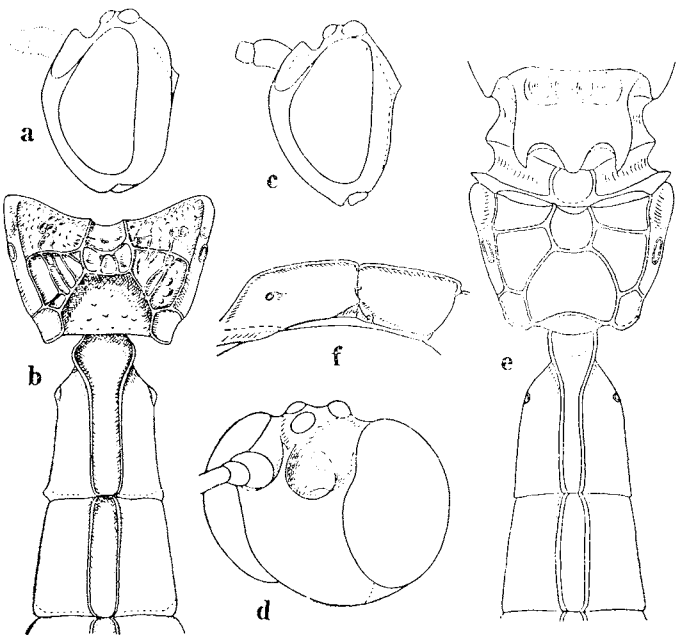

Fig. 1. *Aceratapis*. Head, lateral view, *formosana* (a), *cruralis* sp. n. (c), fronto- and dorso-lateral view, *cruralis* sp. n. (d); propodeum and abdominal tergites I & II, dorsal view, *formosana* (b), *cruralis* sp. n., scutellum also (e); abdominal tergites I & II, lateral view, *cruralis* sp. n. (f).

tergite; epipleura of abdominal segments erectly rectangular, well-developed on tergites I and II; tergite I quadrate with a pair of longitudinal, median carinae, which rarely becomes weak toward the apex, in profile (fig. 2, j) with its antero-dorsal and dorsal surfaces meeting in an angle or a curve, its spiracle located near the basal 0.3; tergite II closely joined with tergite I; six visible tergites in female and seven in male; subgenital plate of female broad.

I am assigning the Taiwan species of *Metopius* to their proper subgenera, though subgeneric synonymy and descriptions have not been given.

Key to the Taiwan Species of *Metopius*

1. Triangular interantennal process of face with a median carina; first abdominal segment in profile basally smoothly curved; forewing with light brown to brown spot in the antero-apical area.....(*M.*) *browni* ASHMEAD
   Triangular interantennal process of face without a median carina; first abdominal segment in profile basally angularly curved; forewing with various markings 2
2. Triangular interantennal process of face flat; abdominal tergite IV yellow or with at least apical 2/3 yellow.....3
   Triangular interantennal process of face concave; abdominal tergite IV entirely black or with at most apical 1/3 yellow.....4
3. First intercubitus about 2.0 times as long as second intercubitus; scutellum and postscutellum entirely black; first abdominal tergite partly black..... .....(*T.*) *fuscolatus* sp. n.
   First intercubitus about 1.5 as long as second intercubitus; scutellum and postscutellum apically yellow; first abdominal tergite entirely yellow..... ..... (*T.*) *soror* sp. n.
4. Abdominal tergites broad, the third one of female about 0.86 as long as wide; dorsal surface of tergite I mostly yellow.....(*Ce.*) *baibarensis* UCHIDA
   Abdominal tergites narrow, the third one of female about 1.3 as long as wide; dorsal surface of tergite I mostly black 5
5. Hind femur about 2.3 as wide as long; abdomen black with very distinct yellow bands on tergites II to IV..... (*Ce.*) *dissectorius taiwanensis* subsp. n.
   Hind femur about 3.9 as wide as long; abdomen blue-black with purple metallic luster, with yellow spots on only apico-lateral corners of tergites II to IV .....(*Ce.*) *metallicus* MICHENER

3. Metopius (Metopius) browni ASHMEAD

Fig. 2, a-b.

Metopius browni ASHMEAD, 1905. Proc. U. S. Nat. Mus., 29: 117.
Type ♂: Manila, Philippines (U. S. National Museum).
Metopius kakogawanus MATSUMURA, 1912. Thousand Insects of Japan Supplement, 4: 100, pl. 46, fig. 18, ♀.

Metopius browni MORLEY, 1912. Revision of Ichneumonidae, British Museum, 1: 82, ♂.
Metopius rufus SONAN, 1925. Taiwan-noji-ho, 219: 13, ♀.
Metopius rufus MATSUMURA, 1930. The Illustrated Thousand Insects of Japan, 2: 111, pl. 9, fig. 18.
Metopius (Ceratopius) rufus UCHIDA, 1930. Jour. Fac. Agr. Hokkaido Imp. Univ., 25: 248.
Metopius (Ceratopius) formosanus CLÉMENT, 1930. Konowia, 8: 410.
Type ♀ (♂?), Chichi (Chip-chip), Kaohsiung (Takao), Peinan (Pilam), Taiwan (designated a type but did not tell its locality) (Budapest).
Metopius (Ceratopius) rufus f. *kakogawanus* UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33 (part 2): 208, 222, ♀, Kangkou (Kankau), Taiwan.

♀: Forewing about 10.5 mm long. Head about 0.83 as deep as wide, in profile as fig. 2, a; mandible with one tooth; facial shield about 1.2 as long as wide, with small punctures denser centrally; interantennal process narrowly triangular, with a strong median carina, and its apical end with a round concavity; frons with upper part striato-punctate and lower part distinctly striate; lateral ocellus separated from eye by about 1.33 its diameter; occiput centrally flattened with a semicircular concavity laterad of lateral ocellus; first flagellar segment about 1.62 as long as second; metapleurum moderately punctate, its extreme apex more or less punctato-striate; scutellum coarsely punctate, in dorsal view with lateral expanded area longer than the median area; propodeum as fig. 2, b; hind femur about 2.6 as long as deep; abdominal segments narrow; tergite I dorsally impunctate or weakly striate, with a pair of longitudinal, median carinae which is moderately strong on the antero-dorsal surface and becomes weak toward the dorsal surface or absent on the apical half, the tergite in profile basally smoothly curved down; tergite II about 0.9 as long as wide; tergite VI about 0.9 as long as wide.

Black, or more or less reddish brown. Abdominal segments except apically, much of thorax, and hind part of head, black; antenna reddish brown, its scape and pedicel in front, (sometimes only maxillary palpus), face, lateral part of frons (except at top), latero-dorsal margin of pronotum, antero-dorsal part of mesopleurum, baso-lateral corner of scutellum, apical half of scutellum, postscutellum, subapico-lateral spot on propodeum, tibiae of front and middle legs, femora apically or also at base, sometimes middle and hind trochanters, apical 0.67 of tergite I, apical 0.3 or 0.4 and lateral 0.5 or 0.64 of tergite II, apical 0.5 or 0.2 of tergite III, apical 0.6 or 0.67 of tergite IV, apical 0.2 to 0.33 of tergite V, yellow; legs fulvous, reddish brown to black except where described as yellow; wings light brown, with a dark spot covering third discoidal cell and apical part of radial cell, pterostigma fulvous.

Specimens 8♀♀: Chiai (Kagi) 1♀ (1 III 1924, M. KATO); Chuchi (Takesaki) 1♀ (26 IV 1923, M. MATO); Chihpen (Chipon) 1♀ (10 XI 1930, R. TAKAHASHI); Pingtung (Heito) 1♀ (1 XI 1932, unknown); Taipei (Taihoku) 1♀ (1 XI 1933, J. SONAN); Wulai (Urai) 1♀ (7 XI 1918, J. SONAN); Wuchiai (Bukai) 1♀ (28 VIII 1940, J. SONAN).

♂: Structure similar to that of female but color pattern differing as follows:

Clypeus, mouth parts, cheek, sometimes apical 1/3 of scutellum, and occasionally very small spot on areola of propodeum, yellow; front and middle legs yellow except ofr hind side middle brownish to black, the base of their coxae and sometimes part of

hind side of their femora blackish; hind coxa black; hind trochanters yellow; hind femur black or reddish brown, with base and apex yellow; hind tibia and tarsus brownish fulvous; apical 0.3 and lateral 0.64 of tergite III, apical 0.4 to 0.66 of tergite IV, lateral 0.2 to 0.3 of tergite V, and extreme apical margin or apical 0.2 of tergite VI, and apical 0.3 of tergite VII, yellow.

Specimens 9♀♀: Chaochou (Châshu) 1♀ (17 III 1927, S. ISSIKI); Tungpu (Tompo) 1♀ (10 IX 1924, SHIRAKI & ESAKI); Hungtouhsu (Kotosho) 1♀ (20 VI–10 VII 1938, M. CHIJÔ); Shuitiliao, Pingtung 2♀♀ (25 VIII 1960, C. H. HUNG); Tainan 1♀ (VII 1911, H. SAUTER, in U. S. National Museum); Taipei (Taihoku) 1♀ (27 VII 1932, T. YOSHIDA); Wulai (Urai) 1♀ (1 XII 1942, J. SONAN).

According to Dr. H. K. TOWNES' note of studying the type of *M. rufus* CAMERON in British Museum, London. This species shows with a little more slender body and different coloration. It seems no doubt to be named as *M. browni* ASHMEAD, described from the Philippines.

4. Metopius (Tylopius) soror, new species

Fig. 2, c–d.

♀: Forewing 11 mm. long. Head about 0.8 as deep as wide, in profile as fig. 2, c; mandible with two teeth; facial shield about 1.2 as long as wide, coarsely punctate and centrally striato-punctate; interantennal process broadly triangular, flattened and punctate; frontal process compressed and connected with interantennal process by a lamella; frons densely striato-punctate, its lower part distinctly striate; lateral ocellus separated from the eye by about 1.34 its diameter, with a semicircular concavity laterad of the ocellus; occiput centro-posteriorly very slightly convex; first flagellar segment as long as the second; metapleurum densely, coarsely punctate, punctato-striate ventrally; scutellum in dorsal view with lateral expanded area longer than its median area; propodeum as fig. 2, d; forewing with 1st intercubitus about as 0.6 as long as 2nd intercubitus; abdominal segments broad, tergite I with antero-dorsal surface polished and impunctate and a pair of moderately strong, longitudinal, median carinae on basal half becoming very weak toward apex, the tergite in profile with its antero-dorsal and dorsal surfaces meeting in a curved right-angle; tergite II about 0.83 as long as wide; tergite VI about 0.78 as long as wide; hind femur about 3.0 as long as deep.

Black. Scape, face, small spot on cheek, lateral lower corner of frons, dorsal margin of pronotum, antero-dorsal part of mesopleurum, baso-lateral corner of scutellum, apical 2/5 of scutellum, base of postscutellum, 2nd lateral area of propodeum, base and apex of middle femur, 2nd trochanter and apical part of first trochanter of middle and hind legs, apical 1/3 of hind femur, tergite I, subapical band on tergite II, apical 2/5 of tergite III, apical 1/2 of tergite IV, and apical margin of tergite V, yellow; antenna, tegula, legs (except yellow markings and basal 2/3 of hind coxa black), apical 1/5 of tergite II, baso-lateral 2/3 of tergite III, and latero-basal 1/2 of tergite IV, brown; wings uniformly light brown.

Holotype ♀: Wushe (Musha) (25 VI–5 VII 1947, MAA et al.).

The name "*soror*" means sister, referring to the fact that this species is close to *fuscolatus*.

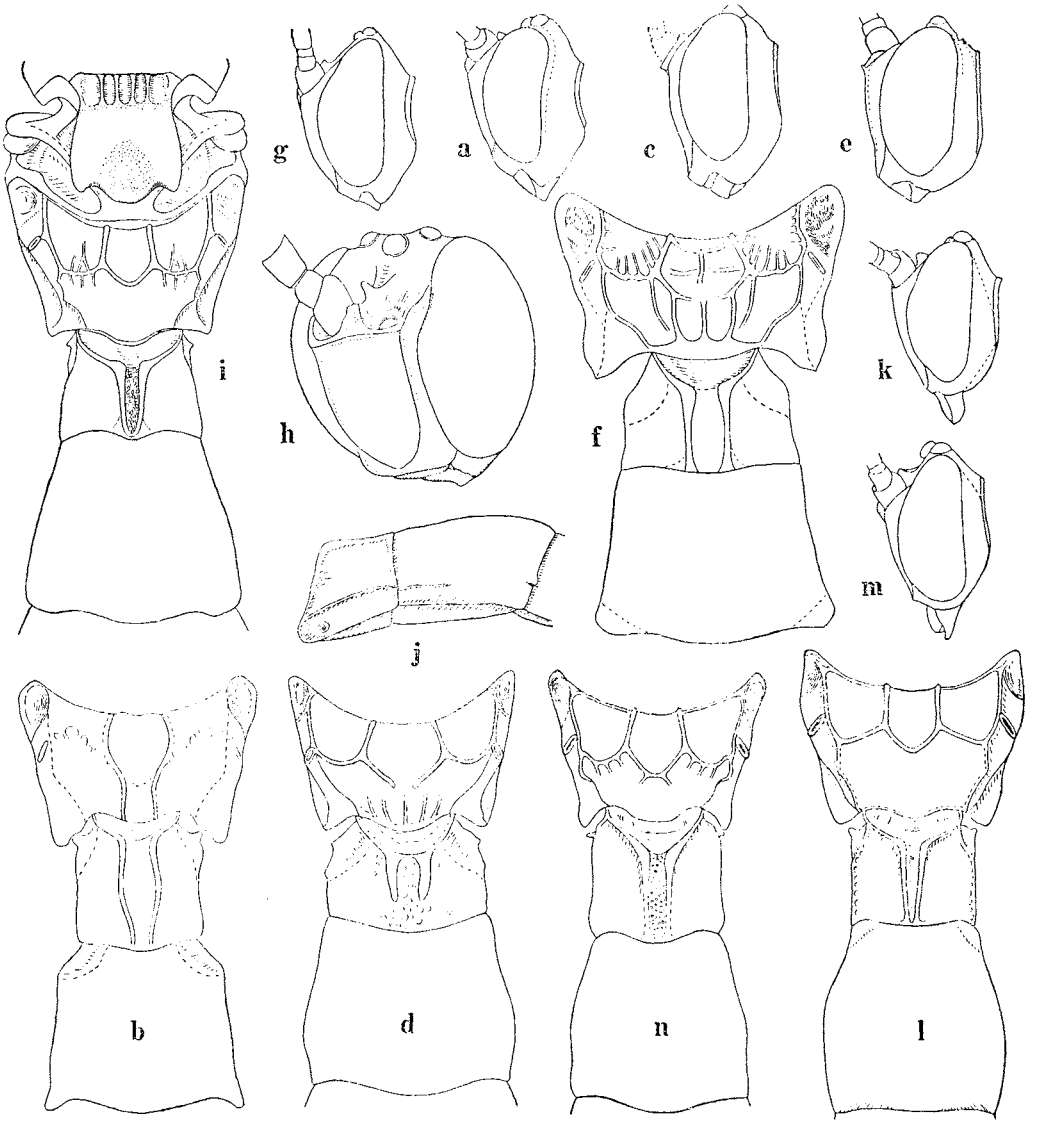

Fig. 2. *Metopius*. Head, lateral view, *browni* (a), *soror* sp. n. (c), *fuscolatus* sp. n. (e), *baibarensis* (g), *dissectorius taiwanensis* subsp. n. (k), *metallicus* (m); fronto- and dorso-lateral view, *baibarensis* (h); propodeum and abdominal tergites I & II, dorsal view, *browni* (b), *soror* (d), *fuscolatus* (f), *baibarensis*, scutellum also (i), *dissectorius taiwanensis* subsp. n. (l), *metallicus* (n); abdominal tergites I & II, lateral view, *baibarensis* (j).

5. Metopius (Tylopius) fuscolatus, new species

Fig. 2, e-f.

♀: Structure and color pattern similar to that of *M. soror*, differing from it as follows:

Head in profile as fig. 2, e; forewing 15.5 mm. long; median longitudinal carinae of tergite I extremely strong and complete (fig. 2, f), and basal third of its dorsal surface, apical margin and carinate area coarsely and sparsely punctate; tergite VI about as long as wide.

Face with two brown marks centrally; yellow marks on pronotum not clear, on mesopleurum much less extensive than on *soror*; scutellum and postscutellum entirely black; tergite I with median area black; postero-lateral corner of tergite II, apical 1/3 of tergite III, and apical 2/3 of tergite IV, yellow to yellowish brown.

Holotype ♀: Lienhuachih (Rangechi) (9 X 1926, S. ISSIKI).

The name "*fuscolatus*" means brown winged.

6. Metopius (Ceratopius) baibarensis UCHIDA

Fig. 2, g-j.

Metopius (*Ceratopius*) *baibarensis* UCHIDA, 1930. Jour. Fac. Agr. Imp. Univ., 25: 250, ♀, ♂.
Type ♂: Meiyuan (Baibara), Taiwan (Sapporo).

♂: Forewing 7.2 mm. long. Head about 0.87 as deep as wide, in profile as fig. 2, g; mandible with two teeth; facial shield about 1.2 as long as wide; interantennal process narrowly, bluntly triangular, entirely concave and punctate; frontal process compressed and moderately punctate; lateral ocellus separated from eye by about as much as its diameter, without a semicircular concavity laterad of ocellus; occiput flattened; first flagellar segment almost as long as the second; pronotum with lower portion polished anteriorly and with longitudinal strong striae medially, upper portion moderately punctate posteriorly; scutellum in dorsal view with lateral expanded area shorter than the median area (fig. 2, i); abdominal tergites broad; tergite I with a pair of moderately strong, longitudinal, median carinae which becomes weak toward apex, the tergite in profile with its antero-dorsal and dorsal surfaces meeting in a curved right-angle (fig. 2, j); tergite II about 0.87 as long as wide; tergite VI about 0.67 as long as wide; hind femur about 2.6 as long as deep.

Black. Scape and pedicel in front, facial shield (except longitudinally rectangular black spot on the center of facial shield); interantennal process, spot on lateral corner of frons lowerly, mandible basally, 2nd segment of maxillary palpus, very small spot on the dorsal margin of mesopleurum, baso-lateral corner of scutellum, postscutellum, apical 0.5 of dorsal surface of tergite I, apical 0.25 of tergites II, III, IV and apical margin of tergite V, yellow; antenna reddish brown except for yellow markings; legs brown, the apex of femur, basal 0.5 of tibia, and tarsus, yellow to fulvous.

♀: Structure very similar to the paratype and homotype male of *M.* (*Ce.*) *baibarensis* UCHIDA but differing as follows:

Lateral ocellus separated from eye by its diameter, with a small crescent-shaped concavity laterad of ocellus; scutellum in dorsal view, its expanded area almost as long as the median area.

Face and scape black, lateral and upper margins of the facial shield and the interantennal process yellow; yellow spot on lateral corner of frons lowerly smaller than in male; postscutellum black; legs entirely reddish brown; apical 0.67 of dorsal surface of tergite I and apical 0.4 of tergite IV yellow; and all of tergite V black.

This female is associated with the male provisionally. It may prove to be a distinct species, but it differs from the male so slightly that for the present it seems best call *baibarensis*.

Homotype ♂: Neipenpu (Naihonpo) 19 VII 1925, T. UCHIDA, it was compared with holotype by Dr. H. K. TOWNES, in TOWNES' collection.

Specimen 1♀: Hsuanyuan (Kayahara), Taiping (Taihei) (2 IX 1923, J. SONAN).

7. Metopius (Ceratopius) dissectorius taiwanensis, new subspecies

Fig. 2, k-l.

♀: Forewing about 11 mm. long. Head about 0.80 as deep as wide, in profile as fig. 2, k; facial shield about 1.27 as long as wide; interantennal process of face narrowly triangular, centrally entirely concave and punctate; frontal process compressed, connected with interantennal process by a ridge; frons moderately punctate, its lower part more or less striato-punctate to striate; lateral ocellus separated from eye by about 0.73 its diameter and with a small crescent-shaped concavity laterad of the ocellus; occiput slightly concave centrally; first flagellar segment about 1.45 as long as the second; pronotum polished on its lower half, with about 3 to 5 strong striae, its upper half with moderately coarse punctures; metapleurum with sparse, moderately coarse punctures which becomes smaller and finer apically; scutellum in dorsal view with expanded area longer than the median area; abdominal tergites narrow; tergite I with a pair of longitudinal, median carinae which becomes less strong toward apex (fig. 2, l), the tergite in profile with its antero-dorsal and dorsal surfaces meeting in a sharp angle; tergite II about 1.09 as long as wide; tergite VI about 0.8 as long as wide; hind femur about 3.0 as long as deep.

Black with dark bluish tinge. Antenna blackish brown, its scape in front yellow or black, or sometimes only outside yellow; margin of facial shield (except lower margin), interantennal process of face, spot on lateral corner of frons lowerly, and hind side of second segment of maxillary palpus, apical 0.3 of dorsal surface of tergite I (sometimes it is interrupted in the middle or entirely black), apical 0.2 or apical margin of tergite II, apical 0.2 to 0.3 of tergite III and apical 0.3 of tergite IV, yellow; tegula and legs brown to dark brown; wings light brown, the costal 0.3 darker.

Type ♀: Kyuhabon 9 X 1926, S. Issiki.

Paratypes 14♀♀: Alishan (Arisan) 1♀ (2–23 X 1918, J. SONAN et al.); Alishan (Numanohira) 1♀ (11 XI 1926, TOYOTA); Fenchihu (Funkiko) 1♀ (26 VII 1927, SHIBATA); Hohuan (Gaogan) 1♀ (17 VII 1938, J. SONAN); Hualien (Karenko) 1♀ (29 VI–4 VIII 1919, J. SONAN); Chuifen, Taitung (Oiwake, Taito) 2♀♀ (20 III 1934); Taiping (Kauirah, Taihei) 1♀ (6 IX 1923, J. SONAN); Taipei (Taihoku) 1♀ (19 XI 1927, J.

SONAN), 1♀ (20 VII 1953, S. C. CHIU); Taipei (Sikikum) 1♀ (XI 1929, J. SONAN); Taipingshan (Taiheizan) 2♀♀ (27 VIII 1929, J. SONAN); Wushe 1♂ (25 VI–5 VII 1947, T. C. MAA et al.); Yuli (Tamasato) 1♀ (17 XI 1925, R. TAKAHASHI).

8. **Metopius (Ceratopius) metallicus** MICHENER

Fig. 2, m-n.

Metopius (Ceratopius) metallicus MICHENER, 1941. Pan-Pacific Ent., 17: 7-9.
Type ♂: S. China (California Academy of Science).

♀: Forewing about 11 mm. long. Head about 0.73 as deep as wide, in profile as fig. 2, m; mandible with two teeth; facial shield about 1.1 as long as wide; interantennal process of face triangular, shallowly concave and punctate; frontal process compressed, connected with interantennal process by a ridge; frons with sparse punctures; lateral ocellus separated from eye by about 0.8 its diameter and with a small crescent-shaped concavity laterad of the ocellus; occiput slightly concave centrally; first flagellar segment about 1.2 as long as the second; pronotum with lower 0.33 polished and with 4 short and strong striae, its upper 0.66 with moderately coarse punctures; metapleurum with moderately coarse punctures, which are finer posteroventrally; scutellum in dorsal view with expanded area shorter than the median area; hind femur about 3.2 as long as deep; abdomen narrow, tergite I with a pair of longitudinal median carinae which becomes less strong toward apex (fig. 2, n), the tergite in profile with its antero-dorsal and dorsal surfaces meeting in a curved right-angle; tergite II about 1.22 as long as wide; tergite VI about 1.08 as long as wide.

Black. Abdominal segments with dark blue metallic luster. Lateral longitudinal band on facial shield, spot on the lateral corner of frons, lowerly and posterior side of 2nd segment of maxillary palpus, yellow; antenna, palpi, and legs dark brown; wings light brown with anterior third of discocubital and radial cells darker; latero-apical margins of tergite II, III and IV fulvous.

♂: Structure similar to that of female but differing as follows:

Lateral ocellus separated from eye by about 0.5 its diameter; longitudinal, median carinae on dorsal surface of tergite I more strong and complete; tergite II about as long as wide; tergite VI about 0.85 as long as wide; scape in front and interantennal process yellow.

Specimens 1♀, 1♂: Fenchihu (Funkiko) 1♀ (29 IV 1931, T. SHIRAKI); Lili (Rikiriki) 1♂ (20 III 1924, N. TAKEDA).

Genus **Triclistus** FOERSTER

Triclistus FOERSTER, 1868. Verh. Naturh. Ver. Rheinlande, 25: 161.
Type: *Exochus podagricus* GRAVENHORST. Designated by MORLEY, 1913.

Head in profile very thick; face roundly convex, shagreened or subpolished, with small to moderately large, sparse to moderately dense punctures; interantennal process

shortly triangular; frontal process compressed and semicircular in profile, its dorso-posterior part shallowly or deeply concave, its lower part forming a lamella connected with interantennal process (fig. 3, j); occipital carina complete; pronotum strongly concave and polished except its flat, punctate dorso-marginal area; mesopleurum with sparse, fine to medium-sized punctures, except for impunctate dorso-posterior part; metapleurum polished, usually impunctate; scutellum normal-shaped, moderately punctate, its lateral carina absent or present only on its basal 0.4; propodeum polished, very finely and weakly punctate; propodeal carinae usually distinct; costula present or absent (fig. 3, k); pterostigma broad; areolet usually present; front and middle femora rather thick; middle tibia with 2 spurs of subequal length; last segment of hind tarsus in female of Taiwan species always with a hook on hind side near apex, tarsal claws simple; abdominal segments medium broad, finely punctate; tergite I trapezoidal, with a pair of incomplete, longitudinal, median carinae, the tergite in profile basally smoothly curved downward (fig. 3, l), the spiracle located near the base; tergite II without longitudinal carinae; epipleurum of tergite I vestigial, of tergites II and III very narrowly rectangular, (about 4.0 as long as wide) and the following ones erectly rectangular; female with tergites VI and VII retracted and subgenital plate narrowly triangular, its apical margin concave.

Key to the Taiwan Species of Triclistus

1. Propodeal carinae well developed; costula present; abdomen black..... .....*aitkini* CAMERON

   Propodeal carinae poorly developed; costula absent; abdomen reddish brown or black.....2

2. Abdomen reddish brown; combined areola and basal area usually poorly defined .....*dimidiatus* MORLEY

   Abdomen black; combined areola and basal area well defined.....3

3. Tergite I almost impunctate, with very few fine punctures scattered on its antero- and postero-lateral corners; hind tibia fulvous.....*pallipes* HOLMGREN

   Tergite I finely and sparsely punctate except for impunctate postero-medially; hind tibia various color.....4

4. Hind femur distinctly thick, about 1.8 as long as wide; tergite II with postero-medial part and posterior margin impunctate; hind tibia entirely black .....*lewi*, sp. n.

   Hind femur normal, about 3.5 as long as wide; tergite II with medial part impunctate, sometimes its extreme base punctate; hind tibia not entirely black 5

5. Tergite I about 1.25 as long as wide; hind leg fulvous with femur and tibia brown to black apically, coxa rarely brown.....*parallelus* UCHIDA

   Tergite I comparatively long, about 1.65 as long as wide; hind leg reddish brown .....*sonani*, sp. n.

9. Triclistus aitkini (CAMERON)

Fig. 3, a-b.

Exochus aitkini CAMERON, 1897. Mem. and Proc. Manchester Lit. Phil. Soc. 41 (4): 31, ♂ description.

Type ♂: Bengal, India, (Oxford Museum).

Triclistus aitkeni MORLEY, 1913. Fauna of British India including Ceylon and Burma (Hymen.) 3: 302. ♂ key, description, figure (emendation) (Bengal, India).

♀♂: Forewing about 6.0 mm. long. Head about 0.89 as deep as wide, in profile as fig. 3, a; face subpolished, with sharp, medium-sized punctures, the interspaces of punctures smaller than their diameter; first flagellar segment about 1.5 as long as the second; lateral ocellus separated from eye by about 1.1 its diameter; temple about 1.0 as long as the greatest width of eye; propodeum with low but strong carinae; costula present and complete (fig. 3, b); areolet present; apex of second discoidal cell 1.64 as long as base; tergite I about 1.48 as long as wide, sparsely punctate except for mid-apical part and apical margin impunctate, with a pair of longitudinal, median carinae which becomes absent on the apical 0.3; hind femur about 2.2 as long as deep; tergite II finely and sparsely punctate.

Black. Antenna blackish brown, brown in front, the front side yellowish toward base; palpi pale yellow; mandible blackish; tegula yellow; legs fulvous, hind tarsus and apex of hind tibia infuscate; wings hyaline.

Specimens 1♀, 1♂: Hsintien (Shinten) 1♀ (20 I 1933, J. SONAN); Taipei (Taihoku) 1♂ (VIII 1911, I. NITOBE).

10. Triclistus dimidiatus MORLEY

Fig. 3, c-d.

Triclistus dimidiatus MORLEY, 1913. Fauna of British India (Hymen.), 3: 301, ♀, key.

Type: ♀, Burma: Karen Hills 3000-3700 (Genoa).

Triclistus dimidiatus UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33 (part 2): 209, Formosa: Tapulin (Taihorin), Chiahsienpu (Kosempo).

♀♂: Forewing about 6.2 mm. long. Head about 0.85 as deep as wide, in profile as fig. 3, c; face shagreened, finely and moderately punctate; first flagellar segment about 1.36 as long as the second; lateral ocellus separated from eye by about 1.0 its diameter; temple about 1.0 as the greatest width of eye; basal area of propodeum mostly weakly defined but still distinguishable; costula absent (fig. 3, d); areolet present, apex of 2nd discoidal cell about 1.5 as long as base; tergite I about 1.4 as long as wide, finely and sparsely punctate except impunctate postero-middle area, and with a pair of very weak, longitudinal, median carinae on the basal half or basal third; hind femur about 2.4 as long as deep; tergite II finely and sparsely punctate except postero-central part impunctate.

Black. Antenna brown with its front side and scape yellowish; mouth parts and tegula yellow; abdomen and legs reddish brown, the front and middle tibiae and basal

0.67 of hind tibia usually yellowish, the apical 0.3 of hind tibia and hind tarsus infuscate; wings hyaline.

Specimens 4 ♀♀, 2 ♂♂: Chingtarn 1 ♂ (13 III 1958, S. C. CHIU); Hsiokotou 1 ♀ (21 XII 1961, S.C. CHIU); Pingtung (Makazayazaya, Heito) 1 ♀ (9 X 1926, J. SONAN); Hsintien 1 ♀ (2 II 1959, S.C. CHIU); Sun-moon lake 1 ♀ (27 I 1929, U. MIWA); Taipei

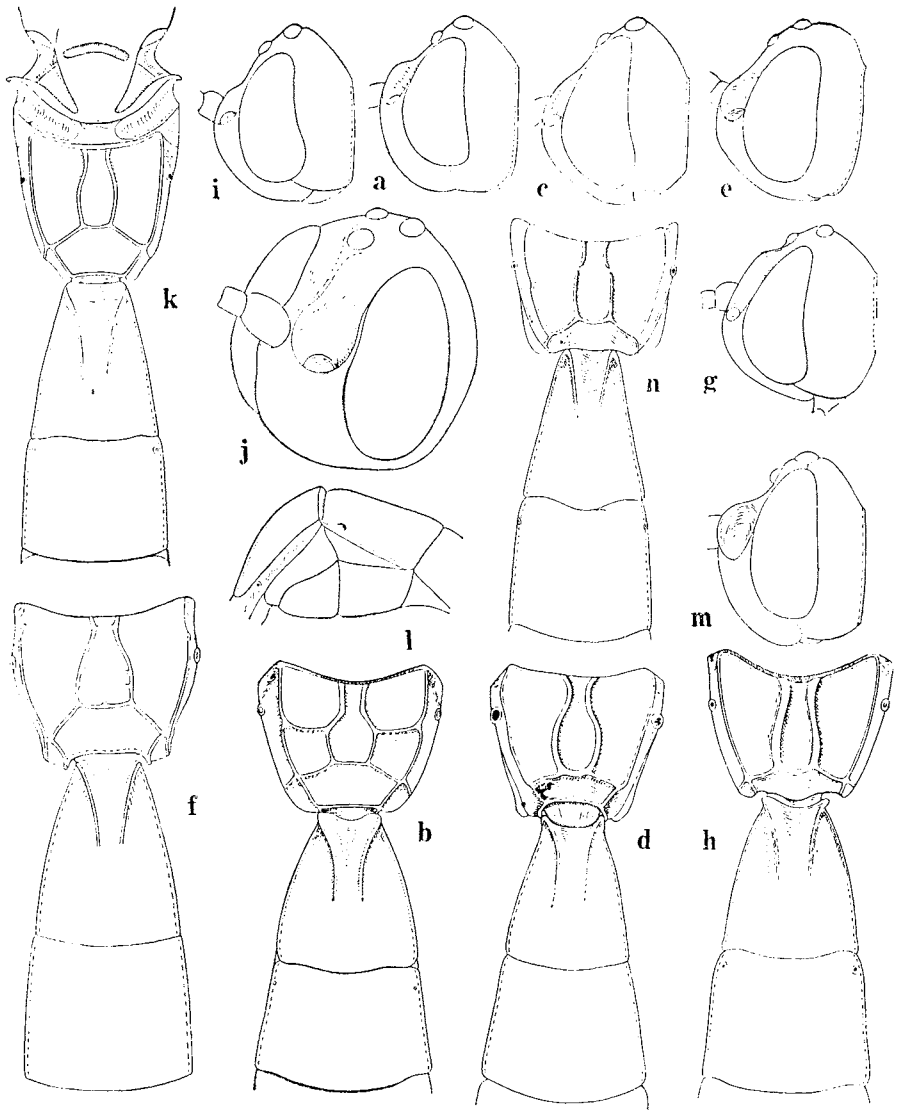

Fig. 3. *Triclistus*. Head, lateral view, *aitkini* (a), *dimidiatus* (c), *pallipes* (e), *lewi* sp. n. (g), *parallelus* (i), *sonani* sp. n. (m), fronto- and dorso-lateral view, *parallelus* (j); propodeum and abdominal tergites I & II, dorsal view, *aitkini* (b), *dimidiatus* (d), *pallipes* (f), *lewi* sp. n. (h), *parallelus*, scutellum also (k), *sonani* sp. n. (n); abdominal tergites I & II, lateral view, *parallelus* (l).

1 ♀ (11 XII 1957, K. S. LIN); Taitung (Taito) 1 ♀, 1 ♂ (25 II–27 III 1919, J. SONAN); Taipingshan (Hatonosawa, Taiheizan) 1 ♀ (15 VII 1938, J. SONAN).

11. Triclistus pallipes HOLMGREN

Fig. 3, e-f.

Triclistus pallipes HOLMGREN, 1873. Öfvers. Svenska Vetensk. Akad. Förh., 30: 59, ♀.
Type: "Wermelandia et Norvegia" (Stockholm).
Triclistus taiwanensis UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33 (part 2): 210. ♀ description (New synonymy).
Type ♀: Tapulin (Taihorin), Taiwan (Berlin-Dahlem).

♀: Forewing about 4.2 mm. long. Head about 0.86 as deep as wide, in profile as fig. 3, e; face shagreened, with fine and sparse punctures; first flagellar segment about as long as the second; lateral ocellus separated from eye by about 1.45 as much as its diameter; temple about as long as the greatest width of eye; propodeum with a few strong carinae, combined areola and basal area rather broad; costula usually absent (fig. 3, b); aerolet sometimes incomplete, apex of second discoidal cell about 2.1 as long as base; tergite I about 1.34 as long as wide, almost impunctate, only very few and sparse punctures on the antero- and postero-lateral corners, and a pair of weak, longitudinal, median carinae which disappears on the apical 0.5; hind femur about 2.4 as long as deep; tergite II almost impunctate except that very few, large and sparse punctures on its lateral and apical parts.

Black. Antenna brown; mouth parts and legs fulvous; wings hyaline.

Specimens 4 ♀♀: Fenchihu (Funkiku) 1 ♀ (9 VI 1932, L. GRESSITT), in TOWNES' collection; Lukuei (Rokki) 1 ♀, Homotype (12 III 1923, J. SONAN); Taipingshan (Taiheizan) 1 ♀ (10 V 1932, L. GRESSITT) in TOWNES' collection.

The ♀ specimen from Lukuei was compared with UCHIDA's type by Dr. H. K. TOWNES in the Deutsches Entomologisches Institute, Berlin.

12. Triclistus lewi, new species

Fig. 3, g-h.

♀: Forewing about 6.5 mm. long. Head about 0.87 as deep as wide, in profile as fig. 3, g; face shagreened, finely and moderately punctate; first flagellar segment about 1.8 as long as the second; lateral ocellus separated from eye by about 1.1 its diameter; temple about 1.4 as long as the greatest width of eye; propodeal carinae simple, low and broad, costula absent (fig. 3, h); areolet present, apex of second discoidal cell about 1.5 as long as base; tergite I about 1.2 as long as wide, finely and densely punctate except apico-median part is impunctate, and baso-median part is slightly raised but without a pair of longitudinal, median carinae; femora very thick, the hind one about 1.8 as long as deep; tergite II finely but more or less densely punctate except for apico-medial part and apical margin impunctate.

Black. Antenna, mouth-parts, tegula apically, front leg with coxa, inner apical part of femur, tibia and tarsus, fulvous; middle tibia and tarsus infuscate; wings

hyaline.

Holotype 1 ♀: Tsaoshan, 16 IV 1958, K. S. LIN.

The name "*lewi*" is in honor of Dr. Din-wei LEW.

13. Triclistus parallelus UCHIDA

Fig. 3, i-1.

Triclistus parallelus UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33 (part 2): 209, ♀.

Type ♀: Kangkou (Kankau), Taiwan (Berlin-Friedrichshagen).

♀♂: Forewing 4.0 mm. long. Head (fig. 3, j) about 0.9 as deep as wide, in profile as fig. 3, i; face shagreened, sparsely finely punctate; first flagellar segment about 1.6 as long as the second, lateral ocellus separated from eye by about 1.0 diameter; temple about as long as the greatest width of eye; propodeal carinae simple, combined areola and basal area narrow, costula absent (fig. 3, k); areolet present, apex of second discoidal cell about 2.0 as long as base; tergite I polished, laterally finely and densely punctate, about 1.25 as long as wide, with a pair of longitudinal, median carinae absent the basal half, in profile as fig. 3, l; hind femur about 2.5 as long as deep; tergite II finely and sparsely punctate except for medial 0.33 impunctate, but in male usually with a few punctures on its extreme base.

Black. Antenna dark brown; mouth parts and tegula fulvous; legs fulvous to brownish yellow; hind leg with apical 0.3 to 0.8 of femur and apical 0.2 of tibia dark brown to black; hind coxa rarely brown; wings hyaline.

Specimens 3 ♀♀; 2 ♂♂; Chingtarn 1 ♀ (12 III 1953, S. C. CHIU); Keelung 1 ♂ (16 III 1958, K. S. LIN); Santiaoling, 2 ♀♀, 1 ♂ (15 XI 1957, F. L. YU).

All specimens are compared with Homotype ♀, Hong San, SE, Kiangsi, 29 VI 1936 (in Dr. H. K. TOWNES' collection).

14. Triclistus sonani, new species

Fig. 3, m-n.

♀: Forewing 5.7 mm. long. Head about 0.84 as deep as wide, in profile as fig. 3, m; face subpolished, with sharp, medium-sized punctures separated by about 1.0 diameter; dorso-posterior part of frontal process deeply concave; first flagellar segment about 1.26 as long as the second; lateral ocellus separated from eye by about 1.1 its diameter; temple about 0.89 as long as the greatest width of eye; propodeal carinae simple, combined basal area and areola bounded by rather weak carinae which are briefly interrupted at some points, costula entirely absent (fig. 3, n); areolet present, apex of 2nd discoidal cell about 2.0 as long as base; tergite I about 1.52 as long as wide, finely and sparsely punctate except impunctate medio-posteriorly, with a pair of very weak, longitudinal, median carinae which disappears at the apical 0.6; hind femur about 2.5 as long as deep; tergite II finely sparsely punctate but impunctate medially and with very few sparse punctures scattered on its anterior half.

Black. Antenna blackish brown, brown in front except yellowish toward base;

mouth parts and tegula yellow; legs reddish brown.

Holotype ♀: Taiping (Kayohara, Taihei), 3 IX 1923, J. SONAN.

This species is named after the collector of the type specimen.

Genus **Colpotrochia** HOLMGREN

Colpotrochia HOLMGREN, 1856. Svenska Vetensk. Akad. Handl. Ser. 3, 4: 80.
Type: *Ichneumon elegantulus* SCHRANK. Monobasic.
Alcocerus FORESTER, 1868. Verh. Naturh. Ver. Rheinlande, 25: 161.
Type: *Tryphon ? trifasciatus* CRESSON. Included by DAVIS, 1897.
Exochoides CRESSON, 1868. Trans. Amer. Ent. Soc., 2: 37.
Type: *Exchoides mexicana* CRESSON. Designated by VIERECK, 1914.
Ischyrocnemopsis ASHMEAD, 1900. Proc. U. S. Nat. Mus., 23: 81.
Type: *Exochoides texana* CRESSON. Original Designation.
Scallama CAMERON, 1899. Mem. Manchester Lit. and Phil. Soc., 43: 216.
Type: *Scallama trilineata* CAMERON. Designated by MORLEY, 1913.
Inoresa CAMERON, 1909. Jour. Bombay Nat. Hist. Soc., 19: 724.
Type: *Inoresa pilosa* CAMERON. Monobasic.
Colpotrochioides UCHIDA, 1930. Jour. Fac. Agr. Hokkaido Imp. Univ., 25: 263.
Type: *Colpotrochioides orientalis* UCHIDA. Original designation.

Head subhexagonal in profile (fig. 4, a); face moderately or weakly convex, with sparse, medium-sized punctures; interantennal process shortly triangular; frons sparsely, finely punctate; frontal process with dorso-posterior part concave, its ventral part forming a lamella connected with interantennal process (fig. 4, b); occipital carina complete; pronotum strongly concave and polished except for flat, punctate dorso-marginal area; mesopleurum sparsely, finely punctate, its dorso-posterior part impunctate; metapleurum weakly and sparsely punctate, its ventral side usually without punctures; scutellum of normal shape, with sparse, fine punctures, its lateral carina weak on basal 0.4 and absent on apical 0.6; propodeum polished, with fine and weak punctures, usually without longitudinal, median carinae; areolet present or absent, 2nd recurrent gently to strongly curved; front and middle femora very thick; middle tibia with two spurs of almost equal length, tarsal claws simple; abdominal segments medium broad; tergite I long and slender, with basal 0.4 to 0.5 narrowing uniformly, with or without a pair of longitudinal, median carinae which when present usually not complete to apex; the tergite I in profile basally nearly straight (fig. 4, h); tergite II without longitudinal carinae; epipleurum of abdominal segment I wedge-shaged, of abdominal segment II erectly rectangular or subquadrate, and of following ones subquadrate.

Key to the Taiwan Species of Colpotrochia

1. Areolet present; abdominal tergite IV and the followings testaceous.....*nana*, sp. n.
   Areolet absent; abdominal tergite IV and the followings black.....2
2. Scutellum flat; mesoscutum and pronotum with yellow markings.....*plana*, sp. n.
   Scutellum convex; mesoscutum and pronotum entirely black.....3

3. Hind leg with coxa, trochanter and femur partially yellow; scutellum entirely or at least apical half yellow.....*pilosa* CAMERON
Hind leg with coxa, trochanter and femur entirely black; scutellum almost entirely black except for apical margin yellowish.....4
4. Abdominal tergite I entirely black; tergite III yellow with basal half black.....*brevicincta*, sp. n.
Abdominal tergite I black with apical half yellow; tergite III yellow without black marking .....*montana*, sp. n.

15. Colpotrochia nana, new species

Fig. 4, a-b.

♀: Forewing 5.3 mm. long. Head about 0.87 as deep as wide, in profile as fig. 4, a; face subpolished, finely and sparsely punctate; first flagellar segment about 1.7 as long as the second; lateral ocellus separated from eye by about 1.25 its diameter; temple about 0.87 as long as the greatest width of eye; apical 2/3 of radius straight, areolet present; scutellum convex; propodeum polished, laterally finely punctate, with only a pair of longitudinal, median carinae which is strong on the base and becomes very weak but still distinguishable toward the apex (fig. 4, b); tergite I about 1.7 as long as wide, with basal half polished and sparsely punctate, apical half impunctate, without a pair of median, longitudinal carinae; tergite III about 0.6 as long as wide; hind legs missing; epipleura of abdominal segments I to III erectly rectangular, the following ones subquadrate; apical margin of subgenital plate of female rather concave.

Black. Tegula (partly) and antenna testaceous; mouth parts and front and middle legs yellow (hind leg missing); abdominal segments reddish brown; apical half of tergite I except for latero-apical margin tinged with dark brown; wings hyaline.

Holotype ♀: Alishan (Numanohira, Arisan) 24 VIII 1927, J. SONAN et al.

The name "*nana*" means small, referring to its small body.

16. Colpotrochia plana, new species

Fig. 4, c-d.

♀: Forewing 13.3 mm. long. Head about 0.87 as deep as wide, in profile as fig. 4, c; frontal process with its dorso-posterior part entirely concave, its lower part forming a lamella connected with interantennal process; the front edge of lamella blunt; lateral ocellus separated from eye by about 0.57 its diameter; first flagellar segment about 1.67 as long as the second; areolet absent, apical 2/3 of radius curved; metapleurum separated from propodeum by a weak carina which curves in its apical half; propodeum without a longitudinal, median carina (fig. 4, d); tergite I about 2.2 as long as wide, without a pair of longitudinal, median carinae; tergite III about 0.9 as long as wide; hind femur about 2.9 as long as deep.

Antenna brown except for yellow scape; head and thorax black except for mouth parts, a band along dorsal margin of pronotum, dorsal margin of mesopleurum, a stripe on the postero-lateral part of mesonotum, dorso-apical 0.3 of metapleurum,

scutellum, postscutellum and propodeum (except transverse black band), yellow; legs yellow, partly tinged with brown; hind femur with a small spot near the apex of front side and a larger spot near the apex of the hind side, dark brown to black; hind tibia with dorso-apical 0.25 brownish; hind tarsal segments medium brown; abdominal tergites yellow, a longitudinal, median stripe on tergite I (about on apical 0.3), baso-central 0.4 of tergite II, baso-central 0.5 of tergite III, tergite IV and the following, black; wings uniformly light brown.

♂: Structure and color pattern very similar to that of female, different in having less black markings; hind femur without black spot; pronotal yellow band broader; mesoscutal stripe extending to antero-lateral part and forming a triangular spot; propodeum with transverse basal band narrower; longitudinal median stripe of tergite I very weak on its apical 0.5; black marks on tergite II and III smaller; tergite IV with a small spot on centro-subapical part and a larger mark on latero-posterior part, yellow.

Holotype ♀: Guantzyling (Kanshirei) 10 XI 1926, J. SONAN.

Allotype ♂: Tsaoshan (Sozan) 20 X 1940, S. Aso.

The name "*plana*" means flat, referring to the flat scutellum.

17. Colpotrochia pilosa (CAMERON)

Fig. 4, e-h.

Inoresa pilosa CAMERON, 1909. Jour. Bombay Nat. Hist. Soc., 19: 724 (♀ as ♂) description. Type: ♀, Punjab: Simla.

Colpotrochia pilosa MORLEY, 1913. Fauna of British India (Hymen.), 3: 307, ♀, key, description. Bombay: Karachi. Punjab: Simla. Host: *Eumenes esuriens* F. nest.

Colpotrochia pilosa UCHIDA, 1930. Jour. Fac. Agr. Hokkaido Imp. Univ., 25: 262. Formosa: Meiyuan (Baibara), Pulishe (Horisha).

Colpotrochia pilosa UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33: 209. Formosa: Kangkou (Kankau).

♀♂: Forewing about 10 mm. long. Head (fig. 4, f) about 0.8 as deep as wide, in profile as fig. 4, e; frontal process with its front edge blunt and thicker on its upper half; lateral ocellus separated from eye by about 0.2 its diameter; first flagellar segment about 1.75 as long as the second in female and about 2.8 in male; areolet absent, apical 2/3 of radius curved; scutellum convex; propodeum without longitudinal, median carina (fig. 4, g); tergite I about 2.0 as long as wide, with a pair of weak, longitudinal, median carinae which becomes weaker and disappears at the apical 0.3, in profile as fig. 4, h; tergite III about 0.77 as long as wide; hind femur about 2.5 as long as deep.

Black. Mouth parts and antenna brown except that scape and pedical are yellow; dorso-posterior corner of pronotum, dorso-posterior margin of mesopleurum, and basal 0.3 of scutellum reddish brown; tegula, apical 0.67 of scutellum, postscutellum, and sometimes median-transverse band of propodeum, yellow; color of legs and abdominal tergites various, front leg yellow, or inner side of coxa, trochanter and femur partially black, middle leg varying from yellow with only a black mark on the hind side of

femur to yellow with its coxa basally, trochanter except above and femur except apically, black; sometimes coxa, trochanter and femur almost entirely black; hind leg with coxa partially to entirely black; tergite I rarely black, its apical 0.3 to 0.5 usually yellow; tergite II yellow with its basal 0.3 to 0.5 black; tergite III entirely yellow,

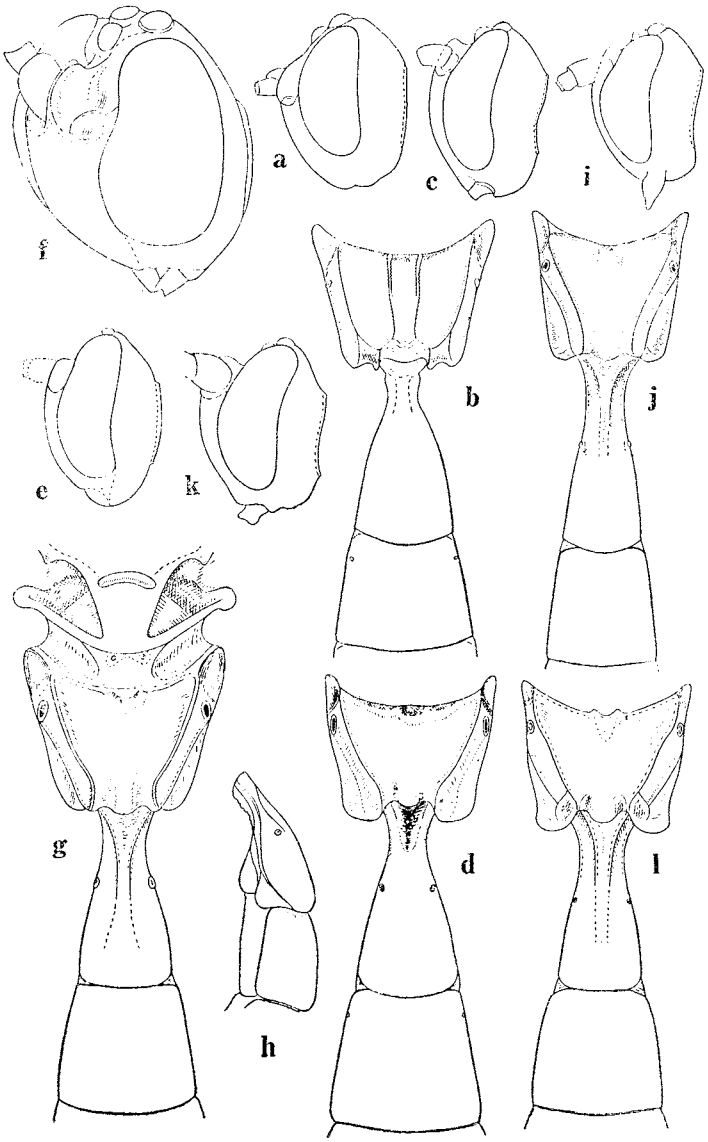

Fig. 4. *Colpotrochia*. Head, lateral view, *nana* sp. n. (a), *plana* sp. n. (c), *pilosa* (e), *brevicincta* sp. n. (i), *montana* sp. n. (k), fronto- and dorso-lateral view, *pilosa* (f); propodeum and abdominal tergites I & II, dorsal view, *nana* sp. n. (b), *plana* sp. n. (d), *pilosa* (g), *brevicincta* sp. n., scutellum also (j), *montana* sp. n. (l); abdominal tergites I & II, lateral view, *pilosa* (h).

yellow with its centro-basal part black, or yellow with its basal 0.5 black.

Specimens 2 ♀♀, 7 ♂♂: Kuankao, Hengchun (Kanko, Koshun) 1 ♂ (IX 1912, H. SAUTER) in the U. S. National Museum; Hengchun (Koshun) 1 ♂ (25 IV–25 V 1918, J. SONAN et al.); Hungtouhsu (Kôtôsho) 1 ♂ (III–IV 1932, S. HIRAYAMA); Pulishe (Horisha) 1 ♀ (10 V 1913, M. MAKI); Hsinchu (Shinchiku) 1 ♂ (1–30 VII 1918, J. SONAN); Tienmu, 1 ♂ (20 XII 1955, S. C. CHIU); Tsaoshan 2 ♂♂ (21 IV 1956 & 14 III 1958, S. C. CHIU); Wushe 1 ♀ (25 VI–5 VII, T. C. MAA et al.).

18. **Colpotrochia brevicincta,** new species

Fig. 4, i–j.

♀: Forewing 7.2 mm. long. Head about 0.82 as deep as wide, in profile as fig. 4, i; frontal process with the front edge of the lamella blunt; lateral ocellus separated from eye by about 0.89 its diameter; first flagellar segment 1.3 as long as the second; areolet absent; apical 2/3 of radius curved; scutellum convex; propodeum without median, longitudinal carina; tergite I long and narrow, about 2.5 as long as wide, with a pair of longitudinal, median carinae which becomes absent on its apical half (fig. 4, j); tergite III about 0.85 as long as wide; hind femur about 2.2 as long as deep; epipleurum of abdominal segment I wedge-shaped, of abdominal segments II and III erectly rectangular, the following ones subquadrate.

Black. Tegula and antenna brown except that scape is mostly yellow; mouth parts except mandible yellow; legs black, front side of coxa and femur in front, front tibia and tarsus, apex of middle femur, an indefinite spot on front surface of middle tibia near base, middle tarsus, and basal 0.4 of hind tibia (less on hind side), yellow.

Holotype ♀: Alishan (Arisan) 10 X 1912, I. NITOBE.

The name "*brevicincta*" means short band, referring to the short yellow band on the hind tibia.

19. **Colpotrochia montana,** new species

Fig. 4, k–l.

♀: Forewing 10.5 mm. long. Head about 0.78 as deep as wide, in porfile as fig. 4, k; frons sparsely punctate; frontal process compressed, dorso-posterior part entirely deeply concave, polished, without punctures, its lower part produced into a lamella, with front edge sharp and connected with interantennal process; lateral ocellus separated from eye by about 0.5 its diameter; first flagellar segment about 0.8 as long as the second; areolet absent, apical 2/3 of radius curved; scutellum convex; propodeum without longitudinal, median carinae (fig. 4, l); tergite I about 2.2 as long as wide, with a pair of longitudinal, median carinae becomes weak on the apical 0.5; tergite III about 0.86 as long as wide; hind femur about 2.7 as long as high.

Black. Antenna brown with ventral side blackish; tegula brown tinged with black; palpi, apical 0.25 of scutellum and apical 0.67 of postscutellum, fulvous; legs with coxae, trochanters and femora, black; apex and much of inner side of front femur

yellow; tibiae yellow, the basal 0.2± and apical 0.45 of middle and hind tibiae blackish; front tarsus medium brown; middle and hind tarsi blackish brown; abdominal tergite I with apical 0.5, tergites II and III yellow to reddish brown; wings uniformly light brown.

♂: Structure and color pattern very similar to that of female, but differing in having inner half of scape clear yellow, palpi and tegula fulvous to blackish, and the dark bands on basal and apical parts of middle tibia a little less extensive; sometimes tergite IV has a reddish brown spot on its latero-basal corner.

Type ♀: Hualien (Karenko) 20 VII–4 VIII 1919, J. SONAN et al.

Allotype ♂: Taipingshan (Taiheizan) 26 VIII 1923, J. SONAN.

Paratypes 3 ♂♂: Alishan (Numanohira, Arisan) 1 ♂ (11 XI 1926, TOYOTO); Taipingshan (Taiheizan) 1 ♂ (26 VIII 1923, J. SONAN); Wushe 1 ♂ (25 VI–5 VII 1947, T. C. MAA et al.).

The name "*montana*" refers to a mountain.

Genus **Drepanoctonus** PFANKUCH

Drepanoctonus PFANKUCH, 1911. Deutsche Ent. Ztschr., vol. 1911, p. 688.
Type: *Drepanoctonus tibialis* PFANKUCH, monobasic.

Head rather short in profile; face finely and densely punctate, its upper part projected backward forming interantennal and lateral processes; frons finely punctate on its upper half and polished, impunctate on its lower half, without frontal process; occiput slightly concave, occipital carina present above; pronotum with upper part finely punctate, with lower part polished and its posterior half distinctly striate; mesopleurum finely to moderately coarsely punctate; metapleurum very finely punctate, and its ventro-posterior part more or less striate; scutellum of normal shape, moderately punctate, its lateral carina present only its basal half; propodeum finely punctate; costula absent; areolet absent, the intercubitus long and oblique, apex of second discoidal cell about 1.14 as long as its base; legs slender; middle tibia with two spurs of subequal length; tarsal claws simple; abdominal segments broad; tergites with rather dense and distinct punctures; tergite I erectly rectangular, its antero-dorsal and dorsal surfaces in profile meeting at a sharp angle, its spiracle located near the base; tergites I and II with a pair of strong, complete, longitudinal, median carinae; lateral and posterior margins of tergite VI rounded; epipleura of abdominal segments rather narrow, of segments I and II vestigial; subgenital plate of female broad, its apical margin rounded.

20. **Drepanoctonus auritus,** new species

Fig. 5, a-d.

♀: Forewing about 8.1 mm. long. Head about 0.76 as deep as wide, in profile as fig. 5, a; face finely, densely punctate; upper part of face projected backward forming a narrowly triangular, interantennal process and ear-like lateral process, the former and the latter surrounded antenna except for the hind side; dorsal edge of interantennal

process grooved, more deeply so posteriorly (fig. 5, b); frons almost flat, the upper part finely punctate and the lower part polished and impunctate; first flagellar segment about 1.37 as long as the second; lateral ocellus separated from eye by about 0.8 its diameter; occiput centrally concave; occipital carina not quite reaching hypostomal carina; temple gently rounded; scutellum with its medium-sized punctures, sparser in center; propodeum with very fine and dense punctures except impunctate basal area and areola, its carinae distinct but not strong, basal area and areola confluent (fig. 5, c); areolet absent; abdominal segments with dense, medium-sized to coarse punctures, the basal two segments with coarser punctures; tergite I erectly rectangular, about 1.28 as long as wide, with a pair of strong, complete, longitudinal, median carinae, the tergite in profile (fig. 5, d) with antero-dorsal and dorsal surfaces meeting at a sharp angle of about 120°; tergite II with a pair of longitudinal, median carinae similar to those on tergite I; tergites III–IV with a single, weak, longitudinal, median carina; tergites III–VI with an oblique, short groove on its antero-lateral corner; lateral and posterior margins of tergite VI rounded; epipleura of abdominal segments narrow, of segments I and II vestigial, of the following ones erectly rectangular; hind femur about 3.5 as long as deep.

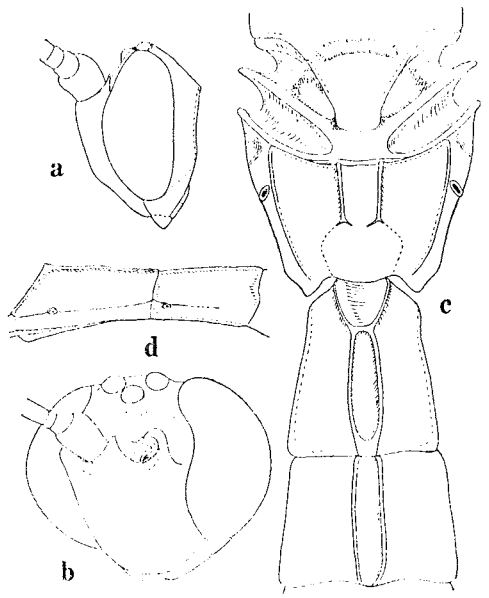

Fig. 5. *Drepanoctonus auritus* sp. n. Head, lateral view (a), fronto- and dorso-lateral view (b); scutellum, propodeum and abdominal tergites I & II, dorsal view (c), abdominal tergites I & II, lateral view (d).

Black. Apical half of mandible (except teeth) and tegula brown; front femur and tibia mostly light brown inner side; abdominal segments blackish brown to black; tergite I with a pair of triangular, yellow spots on its latero-apical corner; tergites II with a yellow band on its apical 0.2 to 0.4 interrupted by median carina; wings hyaline.

Type ♀: Fenchihu (Funkiko) 16 XI 1920, J. SONAN.

Paratypes 5 ♀♀: Alishan (Arisan, Toroen) 1 ♀ (19 IX 1926, TOYODA); Alishan (Arisan) 1 ♀ (16 VII 1949, ?); Fenchihu (Funkiko) 3 ♀♀ (16 XI 1926, J. SONAN).

The name "*auritus*" means eared, referring to the ear-like projection laterad of the base of each antenna.

Genus **Hypsicera** LATREILLE

Hypsicera LATREILLE, 1829. *In* Cuvier, Regne Anim., ed. 2, v. 5, p. 288.
Type: *Alomya* (*Hypsicera*) sp. near *femoralis* GRAVENHORST=(*Ichneumon*) *femoralis* (FOURCROY). Monobasic.

Metacoelus FOERSTER, 1863. Verh. Naturh. Ver. Rheinlande, 25: 161.
Type: (*Exochus femoralis* GRAVENHORST)=(*Ichneumon*) *femoralis* (FOURCROY). Designated by VIERECK, 1914.
Polyclistus FOERSTER, 1868. Verh. Naturh. Ver. Rheinlande, 25: 161.
Type: *Ichneumon femoralis* FOURCROY. Designated by VIERECK, 1912.
Plesioexochus CAMERON, 1905. Trans. South Afr. Philos. Soc., 15: 102.
Type: (*Plesioexochus rufipes* CAMERON)=(*Ichneumon*) *femoralis* (FOURCROY). Monobasic.

Head subtriangular in profile, the back of head dropping off vertically behind the lateral ocelli; face weakly convex, slanting forward from mouth to near base of antenna, and producing a curved, triangular, interantennal process covering antennal sockets from front view (fig. 6, i); pronotum polished, deeply concave, sometimes with very few striae on the ventral half, with very fine punctures along the dorsal margin; mesopleurum finely punctate, except that posterior one third to two thirds is impunctate; metapleurum polished, sometimes with very sparse and fine punctures on anterior and dorsal parts; scutellum normal-shaped, without lateral carina, slightly convex and moderately punctured; propodeum well areolated (in the Taiwan species the costula always present), areola and basal area separated or confluent, their combined shape usually narrow; areolet absent; front and middle femora thick; middle tibia with two spurs, approximately equal in length; tarsal claws simple or the front and middle claws pectinate; tergite I triangular, its basal two-thirds with a pair of longitudinal, median carinae, in profile basally smoothly curved down, its spiracle located at or a little before the middle (fig. 6, l); tergite II without longitudinal carina; abdominal epipleura I and II vestigial, III wedge-shaped and the following ones broadly rectangular; tergite IV to VI covered with moderately dense and fine hairs.

Key to the Taiwan Species of Hypsicera

1. Front and middle tarsal claws simple; propodeum with areola and basal area confluent 2
   Front and middle tarsal claws pectinate; propodeum with areola and basal area confluent or separate 3
2. Tergite I with very few and weak punctures on its apico-lateral area; penis of male genitalia with a strong subapical seta ..... *seta*, sp. n.
   Tergite I with fine and sparse punctures on its apico-lateral area; penis of male genitalia without a subapical seta ..... *lita*, sp. n.
3. Propodeum with areola and basal area separated by a complete carina; metapleurum with a few, sparse, fine punctures along anterior and dorsal margins ..... *erythropus* CAMERON
   Propodeum with areola and basal area confluent, or separated by an incomplete carina or rugosity; metapleurum entirely impunctate or with very few punctures along anterior and dorsal margins 4
4. Propodeum with areola and basal area thoroughly confluent 5
   Not as above 8
5. Scutellum flat or flat rather than convex 6

Scutellum distinctly convex or at least apically convex.....7

6. Combined areola and basal area about 2.97 as long as wide, and about 2.4 the length of petiolar area.....*exserta*, sp. n.

Combined areola and basal area about 2.4 as long as wide, and about 1.8 the length of petiolar area.....*formosana* UCHIDA

7. Tergite II much wider than long, about 1 : 0.6 in ratio.....*femoralis* FOURCROY

Tergite II almost as wide as long, about 1 : 0.83 in ratio.....*affinis*, sp. n.

8. Lateral ocellus smaller, its separated from eye by about 1.8 its diameter; propodeal carinae rather weak.....*globosa*, sp. n.

Lateral ocellus larger, its separated from eye by about 0.5 to 0.8 its diameter; propodeal carinae strong.....9

9. Combined areola and basal area very short, about 0.9 the length of petiolar area; areola and basal area separated by a lower and incomplete carina; metapleurum with very few punctures; penis of male genitalia without a subapical seta.....*carnosa*, sp. n.

Combined areola and basal area normal, about 1.5 the length of petiolar area; areola and basal area separated by a few rugosities; metapleurum impunctate; penis of male genitalia with a subapical seta.....*townesus*, sp. n.

21. **Hypsicera seta**, new species

Figs. 6, a & 7, a.

♂: Forewing 3.5 mm. long. Head about 0.91 as deep as wide, in profile as fig. 6, a; projection of head in front of eye about 0.27 the greatest width of eye, and about 1.0 the length of the temple; lateral ocellus separated from eye by about 1.15 its diameter; occipital carina present dorsally; metapleurum entirely polished and impunctate; scutellum roundly convex; propodeum (fig. 7, a) with areola and basal area confluent, their combined lengths about 1.5 the length of petiolar area, propodeal carinae narrow; hind femur about 3.0 as long as deep; front and middle claws simple; tergite I about 1.8 as long as wide; tergite II about 0.88 as long as wide; penis of genitalia with a subapical seta.

Color similar to that of *H. lita*.

Type ♂: Kuankao (Kanko) 18 IX 1924, T. SHIRAKI & J. SONAN.

Paratype ♂: Kuankao (Kanko) 18 IX 1924, T. SHIRAKI & J. SONAN.

The name "*seta*" refers to the subapical seta on the penis of male genitalia.

22. **Hypsicera lita**, new species

Figs. 6, b & 7, b.

♂: Forewing 4.2 mm. long. Head about 0.89 as deep as wide, in profile as fig. 6, b; projection of head in front of eye in profile about 0.5 the greatest width of eye, and about 0.51 the length of the temple; lateral ocellus separated from eye by about 1.28 its diameter; first flagellar segment about 1.4 as long as the second; metapleurum entirely polished without any punctures; scutellum roundly convex, apically round;

propodeum (fig. 7, b) with areola and basal area confluent, their combined lengths about 2.7 the length of petiolar area; propodeal carinae broad; hind femur about 2.6 as long as deep; front and middle claws not pectinate; tergite I about 1.6 as long as wide; tergite II about 0.83 as long as wide; penis of genitalia without subapical seta.

Black. Palpi, tegula and legs testaceous; antenna, front angle of head, and hind corner of pronotum, reddish brown.

Type ♀: Wushe (Musha) 18 V–15 VI 1919, J. SONAN et al.

Paratypes 3 ♀♀: Alishan (Numanohira, Arisan) 1 ♀ (24 VIII 1927, J. SONAN et al.); Hsiukuluanshan (Shiyukoran) 1 ♀ (13 IX 1924, T. SHIRAKI et al.); Wushe (Musha) 1 ♀ (18 V–VI 1919, T. OKUNI).

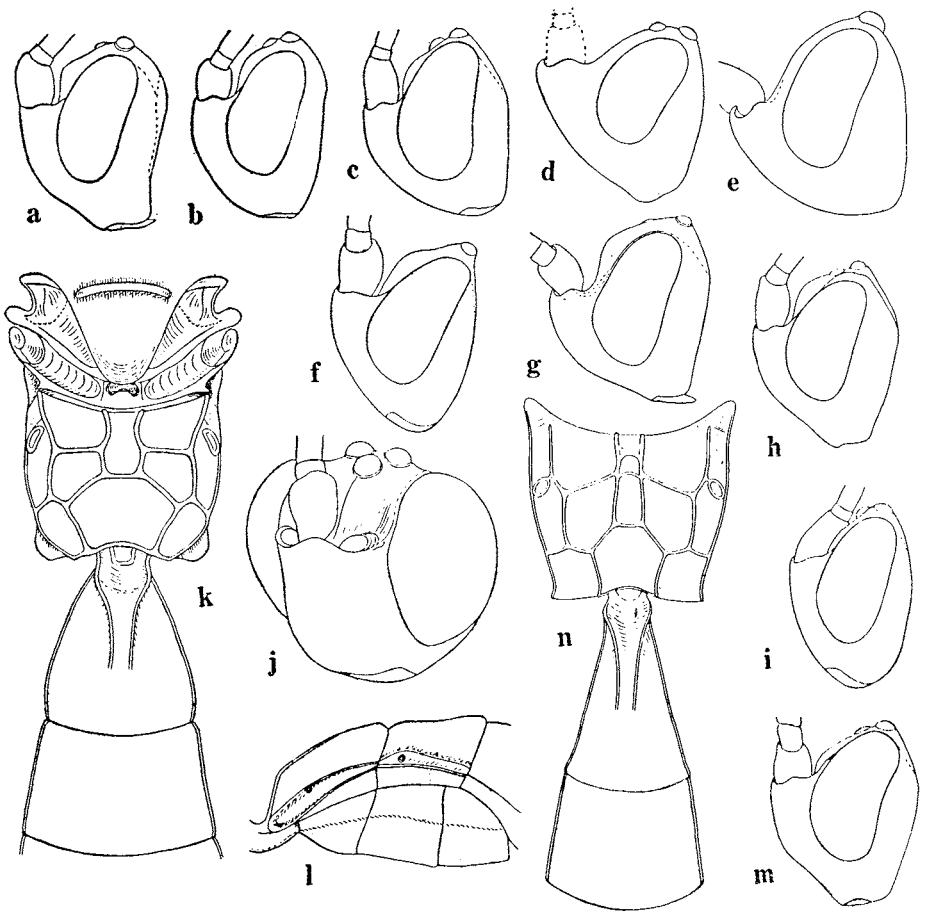

Fig. 6. *Hypsicera*. Head, lateral view, *seta* sp. n. (a), *lita* sp. n. (b), *erythroupus* (c), *exserta* sp. n. (d), *formosana* (e), *femoralis* (f), *affinis* sp. n. (g), *globosa* sp. n. (h), *carnosa* sp. n. (i), *townesus* sp. n. (m); fronto-and dorso-lateral view, *carnosa* sp. n. (j), propodeum and abdominal tergites I & II, dorsal view, *carnosa* sp. n. scutellum also, (k) *townesus* sp. n. (n); abdominal tergites I & II, lateral view, *carnosa* sp. n. (l).

The name "*lita*" means simple or smooth, referring to lack of pectination tarsal claws.

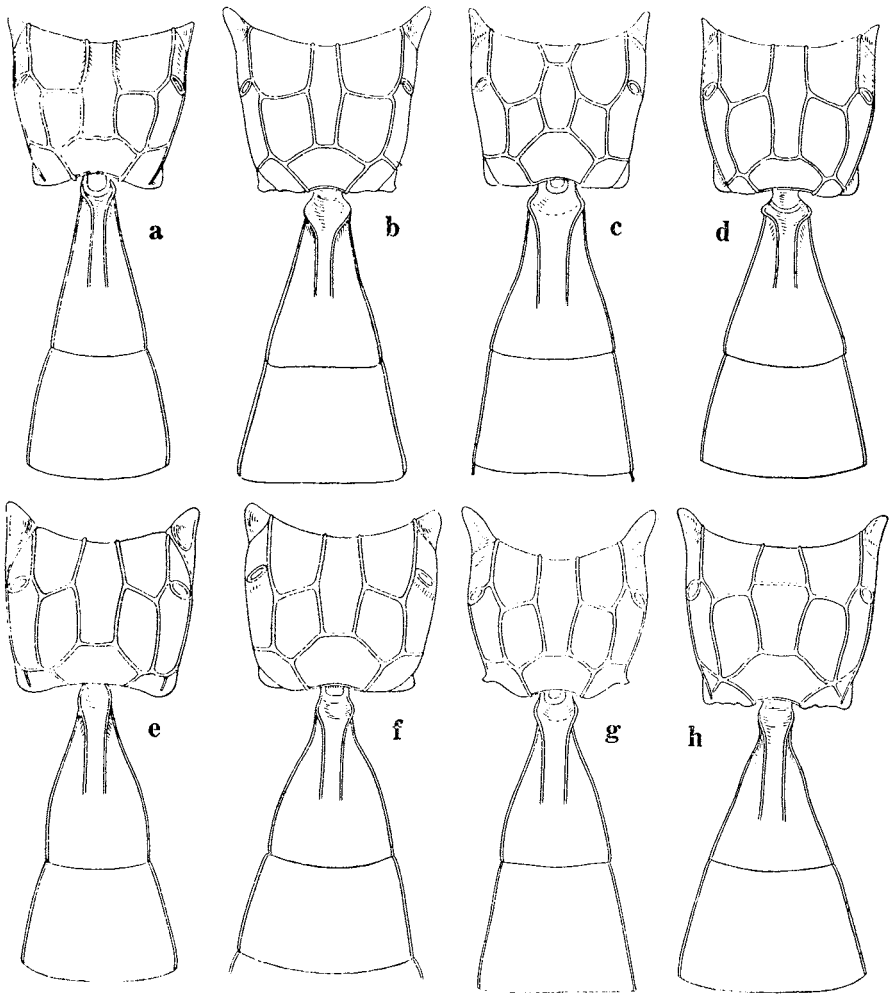

Fig. 7. *Hypsicera*. Propodeum and abdominal tergites I & II, dorsal view, *seta* sp. n. (a), *lita* sp. n. (b), *erythropus* (c), *exserta* sp. n. (d), *formosana* sp. n. (e), *femoralis* (f), *affinis* sp. n. (g), *globosa* sp. n. (h).

23. Hypsicera erythropus (CAMERON)

Figs. 6, c & 7, c.

Exochus erythropus CAMERON, 1902. Jour. Bombay Nat. Hist. Soc., p. 423.
Type ♀: Simla (NURSE's collection).
Polyclistus erythropus CAMERON, 1913 Fauna of British India. (Hymen.) 3: 300, description.

♂: Forewing 5.4 mm. long. Head about 1.10 as deep as wide, in profile as fig. 6, c; projection of head in front of eye in profile about 0.39 the greatest width of eye, and about 0.87 the length of temple; lateral ocellus separated from eye by about 0.78 its

diameter; first flagellar segment about 1.58 as long as the second; scutellum slightly convex, apically round; metapleurum polished, with a few, sparse, fine punctures along anterior and dorsal margins; propodeum (fig. 7, c) with areola and basal area separated, their combined lengths about 1.2 the length of petiolar area; propodeal carinae broad and high; hind femur about 2.3 as long as deep. front and middle claws pectinate; tergite I about 1.8 as long as wide; tergite II about 0.6 as long as wide; penis of genitalia without subapical seta.

Black. Antenna, triangular process of face, mouth parts, tegula and legs, testaceous to brown; sometimes tarsal segments apically and tibia basally brown.

Specimens 6♂♂: Alishan (Arisan) 1♂ (2 X 1918, J. SONAN et al.); Pahsianshan (Hassenzan) 1♂ (26 VI 1934, TOWNES' collection); Hengchun (Koshun) 2♂♂ (25 IV–25 V 1918, J. SONAN et al.); Hungtouhsu (Kôtôsho) 1♂ (10-14 IV 1914, T. SHIRAKI); Kueitzuchio (Kuraru) 1♂ (18 IV 1928, J. SONAN).

24. **Hypsicera exserta**, new species

Figs. 6, d & 7, d.

♀: Forewing 4.8 mm. long. Head about 0.96 as deep as wide, in profile as fig. 6, d; projection of head in front of eye in profile about 0.71 the greatest width of eye, and about 0.8 the length of temple; lateral ocellus separated from eye by about 1.33 its diameter; metapleurum entirely polished and impunctate; scutellum flat; propodeum (fig. 7, d) with areola and basal area confluent, that about 2.97 as long as wide, their combined lengths about 2.4 the lengh of petiolar area; propodeal carinae narrow; hind femur about 2.6 as long as deep; front and middle claws not pectinate; tergite I about 1.3 as long as wide; tergite II about 0.66 as long as wide.

Color similar to that of *H. lita*.

Type ♂: Alishan (Arisan) 26 IV 1917, T. SHIRAKI.

The name "*exserta*" means projected, referring to the fact that the head in front of eye is greatly prolonged.

25. **Hypsicera formosana** (UCHIDA), new combination

Figs. 6, e & 7, e.

Metacoelus formosana UCHIDA, 1930. Jour. Fac. Agr. Hokkaido Univ., 25: 266, ♀, description.
Type ♀: Neipenpu (Naihonpo), Formosa (Sapporo).

♀: Forewing 3.5 mm. long. Head about 0.95 as deep as wide, in profile as fig. 6, e; projection of head in front of eye in profile about 0.77 the greatest width of eye, and about the length of temple; lateral ocellus separated from eye by about 1.1 its diameter; first flagellar segment about 1.42 as long as second; scutellum flat; metapleurum entirely polished and impunctated; propodeum (fig. 7, e) with areola and basal area confluent, their combined lengths about 1.8 the length of petiolar area, propodeal carinae not distinctly broad; hind femur about 2.3 as long as deep; front and middle claws pectinate; tergite I about 1.4 as long as wide; tergite II about 0.72 as long as wide.

Black. Antenna, triangular process of face, mouth parts, tegula and legs, brown.

Specimens 2♀♀: Hualien (Karenko) 1♀ (2 VII–4 VIII 1919, J. SONAN et al.); Luantashan (Rantaizan) 1♀ (20 X 1928, J. SONAN).

26. Hypsicera femoralis (FOURCROY)

Figs. 6, f & 7, f.

Ichneumon femoralis FOURCROY, 1875. Entomologia parisiensis, 2: 396.
Type: ? Paris (lost).

♀♂: Forewing about 4.5 mm. long. Head about 0.79 as deep as wide, in profile as fig. 6, f; projection of head in front of eye in profile about 0.5 the greatest width of eye, and about 1.0 the length of temple; lateral ocellus separated from eye by about 0.87 its diameter; first flagellar segment of female about 2.9 as long as second, of male about 1.30 as long as second, in female the last flagellar segment a little longer than those preceding it; scutellum slightly convex; metapleurum entirely polished and impunctate; propodeum (fig. 7, f) with areola and basal area confluent, their combined lengths about 1.6 the length of petiolar area; propodeal carinae distinctly broad; hind femur broad, about 2.1 as long as deep in female, about 2.8 as long as deep in male; front and middle claws pectinate; tergite I about 1.3 as long as wide; tergite II about 0.6 as long as wide; penis of male genitalia without subapical seta.

Black. Antenna, triangular process of face, mouth parts, tegula and legs, testaceous to brown, sometimes mandible entirely or at least its basal third brown.

Specimens 1♀, 3♂♂: Pahsianshan (Hassenzan) 1♂ (26 VI 1936) in TOWNES' collection; Hualien (Karenko) 1♂ (20 VII–4 VIII 1919, J. SONAN et al.); Hungtouhsu (Kôtôsho) 1♂ (10–14 IV 1920, T. OKUNI); Lili (Rikiriki) 1♂ (20 II 1924, N. TAKEDA).

27. Hypsicera affinis, new species

Figs. 6, g & 7, g.

♀: Forewing 4.1 mm. long. Head about 0.85 as deep as wide, in profile as fig. 6, g; projection of head in front of eye about 0.46 the greatest width of eye, and about as long as the length of temple; lateral ocellus separated from eye by about 0.62 its diameter; occipital carina absent; metapleurum polished and entirely impunctate; scutellum slightly convex; propodeum (fig. 7, g) with areola and basal area confluent, their combined lengths about 2.0 the length of petiolar area, propodeal carinae broad; hind femur about 2.3 as long as deep; front and middle claws pectinate; tergite I about 1.35 as long as wide; tergite II about 0.83 as long as wide.

Color similar to that of *H. lita*.

Holotype ♀: Santiaoling 15 XI 1957, F. L. YU.

The name "*affinis*" means similar, referring to the shape of its abdomen similar to that of *H. lita*.

28. Hypsicera globosa, new species

Figs. 6, h & 7, h.

♀: Forewing 3.1 mm. long. Head about 1.0 as deep as wide, in profile as fig. 6,

h; projection of head in front of eye in profile about 0.67 the greatest width of eye, and about 0.78 the length of temple; lateral ocellus separated from eye by about 1.8 its diameter; first flagellar segment about 2.0 as long as the second; scutellum more or less flat; metapleurum polished and impunctate; propodeum (fig. 7, h) with areola and basal area separated by an incomplete carina, their combined lengths about 2.1 the length of petiolar area, propodeal carinae comparatively weak; hind femur about 3.0 as long as deep; front and middle claws pectinate; tergite I about 1.35 as long as wide; tergite II about 0.6 as long as wide.

Color similar to that of *H. lita.*

Holotype ♀: Hualian (Karenko) 20 VII–4 VII 1919, J. SONAN et al.

The name "*globosa*" means round, referring to the round face.

29. Hypsicera carnosa, new species

Fig. 6, i–l.

♂: Forewing 6.8 mm. long. Head about 0.9 as deep as wide, in profile as fig. 6, i; projection of head in front of eye in profile about 0.4 the greatest width of eye, and about 0.75 the length of the temple; lateral ocellus separated from eye by about 0.82 its diameter; first flagellar segment about 1.41 as long as the second; metapleurum entirely polished and almost impunctate, with very few punctures along dorsal margin; scutellum convex; propodeum (fig. 6, k) with areola and basal area separated by a lower and incomplete carina, their combined length about 0.9 the length of petiolar area, propodeal carinae broad and high; hind femur about 2.4 as long as deep; front and middle claws pectinate; tergite I about 1.15 as long as wide; tergite II about 0.6 as long as wide; penis of genitalia without subapical seta.

Black. Antenna, triangular process of face, palpi, tegula and legs, testaceous, hind coxa except extreme apex and tarsal segments dark brown.

Type ♂: Wushe (Musha) 18 V–15 VI 1919, J. SONAN, K. MIYAKE, & M. YOSHINO.

The name "*carnosa*" means stout, referring to the stout body.

30. Hypsicera townesus, new species

Fig. 6, m–n.

♂: Forewing 3.1 mm. long. Head about 0.80 as deep as wide, in profile as fig. 6, m; projection of head in front of eye in profile about 0.5 the greatest width of eye and about as long as the length of temple; lateral ocellus separated from eye by about 0.5 its diameter; occipital carina absent; first flagellar segment about 1.6 as long as the second; metapleurum impunctate; scutellum slightly convex; propodeum (fig. 6, n) with strong carinae, areola and basal area separated by a few rugosities, their combined lengths about 1.5 the length of petiolar area; hind femur about 2.6 as long as deep; front and middle claws pectinate; tergite I about 2.0 as long as wide; tergite II about 0.85 as long as wide; penis of genitalia with a subapical seta.

Black. Palpi, front angle of head, antenna and tegula testaceous; hind corner of pronotum brown.

Holotype ♂: Santiaoling 15 XI 1957, F. L. YU.

The name "*townesus*" is in honor of Dr. Henry K. TOWNES.

Genus **Exochus** GRAVENHORST

Exochus GRAVENHORST, 1829. Ichneumonlogia Europaea, 2: 328.
Type: *Ichneumon gravipes* GRAVENHORST. Designated by VIERECK, 1912.
Amesolytus FOERSTER, 1868. Verh. Naturh. Ver. Rheinlande, 25: 161.
Type: *Amesolytus ferrugineus* ASHMEAD. Included by ASHMEAD, 1896.
Mima DAVIS, 1897. Trans. Amer. Ent. Soc., 24: 206, 219. name preoccupied.
Type: *Mima washingtonensis* DAVIS. Monobasic.

Head in profile, with round face and occiput flattened or concave behind the ocelli; face with moderately coarse punctures; interantennal process of face broadly triangular; frons usually slightly convex or with a compressed semicircular process that is connected below with interantennal process by a median carina or ridge (fig. 8, h); occipital carina present or absent dorsally; pronotum strongly concave and polished except for marginal area which is flat and punctate; mesopleurum finely, sparsely and weakly punctate; metapleurum entirely polished and impunctate the Taiwan species; scutellum normally shaped, slightly convex, with fine to moderately coarse punctures, its lateral carina absent; propodeal carinae weak to strong but simple in the Taiwan species, the propodeum well areolated; areolet absent; front and middle femora very stout; middle tibia with two spurs different in length, the front spur always shorter than the hind one; tarsal claws simple; abdominal segments narrow or comparatively broad; tergite I trapezoid-shaped, with a pair of longitudinal, median carinae usually becoming absent apically, tergite I in profile (fig. 8, j), basally smoothly curved downward; epipleura of tergites I and II vestigial, of tergite III wedge-shaped, semicircular or rectangular, its following epipleura erectly rectangular.

Body shining, mostly black with yellow markings, rarely yellow to fulvous with black markings; head usually with a small spot above eye.

Key to the Taiwan Species of Exochus

(The species *oshimensis*, *radialis*, and *suishanus* are not known to the author, so are not in the key.)

1. Body yellow or brownish yellow with black markings 2
   Body entirely black or black with yellow markings 3
2. Upper part of frontal process with a sharp carina on its median line; propodeal carinae weak; basal area and areola separated.....*stenus*, sp. n.
   Upper part of frontal process without median carina; propodeal carinae strong, basal area and areola confluent .....*longicaudis*, sp. n.
3. Propodeum incompletely areolated, propodeal carinae weak, scutellum and postscutellum entirely black.....*leptomma*, sp. n.
   Propodeum well areolated, propodeal carinae strong, scutellum (latero-apically) and postscutellum yellow.....*scutellaris*, sp. n.

31. Exochus oshimensis UCHIDA

Exochus oshimensis UCHIDA, 1930. Jour. Fac. Agr. Hokkaido Imp. Univ., 25: 267, ♀, ♂, description.

Type ♀: Oshima-Insel, Japan (Berlin-Dahlem).

This species is not known to the author. The original description is as follows: "♀. Kopf hinter den Augen verschmälert; Scheitel ziemlich steil abfallend; Stirn zerstreut fein punktiert, in der Mitte konvex, aber vorn tief niedergedrückt; Gesicht gewölbt, dicht fein punktiert, oben rein gelb; Palpen schlank und gelb. Fühler deutlich kürzer als der Körper, dick, fadenförmig, schwarz. Beine dick, ganz rein gelb, die Mittel-und Hinterhüften sowie auch die Trochantern schwarz, die Vorderhüften schmutziggelb. Mesonotum spärlich fein punktiert; Parapsidenfurchen vorn schwach angedeutet; Schildchen flach, die Spitze desselben und das Hinterschildchen rein gelb; Metathorax ganz gefeldert; Area superomedia quadratisch, Costula vor der Mitte; Area basalis von der Area superomedia durch eine schwache Querlinie getrennt. Hinterleib ganz glatt und glänzend; das erste Segment etwas länger als breit, an der Basis nur wenig verengt, am Rücken mit 2 kurzen Kielen, die übrigen Segmente quer.

♂. Die Form und Skulptur stimmt mit der des Weibchens überein, die Färbung aber ganz verschieden. Fühler schwarz. Beine grösstenteils schwarz, die Vorderhüften nur an der Spitze gelb, die Vorder- und Mittelschenkel, alle Schienen und Tarsen dunkelbraun, aber die Schienen an der Basis gelb gefleckt, die Hinterschenkel an der Basis mehr oder weniger bräunlich, deren Schienenendsporen weisslich. Beide Schildchen zuweilen ganz schwarz. Körperlänge: ♀ 7.5 mm. ♂ 7–7.5 mm.

Fundort: Oshima-Insel; 7 (1♀, 6♂) Exemplare wurden am 2. April 1928 von K. SATÔ erbeutet."

32. Exochus radialis UCHIDA

Exochus radialis UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33 (part 2): 210, ♀, description.

Type ♀: Tapulin (Taihorin), Taiwan (Berlin-Dahlem).

This species is not known to the author. The original description is as follows: "♀. Kopf quer, hinter den Augen rundlich verschmälert, glatt, glänzend; Gesicht punktiert und fein pubescent. Fühler fadenförmig, kaum länger als der halbe Körper. Thorax ein wenig breiter als der Kopf; Mesonotum fein behaart, schwach glänzend; Parapsidenfurchen fehlend; Pleuren glatt, deutlich glänzend; Schildchen flach gewölbt; Luftlöcher oval und klein; Area superomedia länger als breit, Costula vor der Mitte. Hinterleib glatt und glänzend. Bohrer kurz vorragend. Flügel hyalin; Radialzelle kurz; Nervellus weit unter der Mitte gekrümmt. Korperlänge: 4 mm."

Schwarz und glänzend. Schaft unten, Gesicht, 2 kleine Flecken auf dem Scheitel, Clypeus, Wangen und Palpen rein gelb; Beine gelbrot, die 4 vorderen Hüften, die Vorderschienen, alle Tarsen und die Mittel- und Hinterschienen nur an jeder Basalhälfte hellgelb; je ein Makel vor und unter den Flügeln, Tegulen und Flügelwurzel gelbbraun. Bohrer braun. Das 2te und 3te Hinterleibssegment am Endrand bräunlich. Stigma und Nerven dunkelbraun. Hinterhüften schwarz.

Fundort: Taihorin (1 ♀, V, 1910).

Unterscheidet sich von *E. parca* MORL. durch den glänzenden Thorax.

33. Exochus suishanus UCHIDA

Exochus suishanus UCHIDA, 1932. Jour. Fac. Agr. Hokkaido Imp. Univ., 33 (part 2): 211, ♀, description.

Type ♀: Shuisheliao (Suishario), Taiwan (Sapporo).

This species is not known to the author. The original description is as follows: "♀. Das Tierchen ist verwandt mit der vorigen Art, unterscheidet sich jedoch von ihr durch die folgenden Merkmale:

1) Radialzelle verlängert, an der Spitze stark zugespitzt.
2) Schildchen am Ende und das Hinterschildchen gelbbraun.
3) Hinterhüften ganz gelbrot. Körperlange: 6 mm.

Fundort: Shuisheliao (Suishario) (1♀, X, 1911)."

34. Exochus stenus, new species

Fig. 8, a-b.

♀: Forewing about 4.5 mm. long. Head about 0.86 as deep as wide, in profile as fig. 8, a; face moderately punctured; frons finely punctured, with a median, compressed, semicircular process and a strong, median carina which attached ventrally to interantennal process; lateral ocellus separated from eye by about 1.6 as much as its diameter; occiput behind the lateral ocellus centrally rather concave, occipital carina complete above; first flagellar segment about 1.5 as long as the second; temple about 0.7 as long as the greatest width of eye; propodeum incompletely areolate, propodeal carinae weak, carina bounding the apical margins of areola and 2nd lateral area almost indistinguishable (fig. 8, b); hind femur about 2.3 as long as deep; abdominal tergites slender; tergite I about 0.76 as long as wide, its longitudinal, median carinae present only on its antero-dorsal surface; tergite III and following tergites becoming gradually narrow; tergite IV about 0.92 as long as wide; abdominal epipleura narrow, vestigial on tergites I and II, wedge-shaped on tergite III and rectangular on the following.

Mostly light yellow but the abdomen largely and part of thorax black. Antenna brown; frons next to antennal socket, triangular area enclosing ocelli, central concave area and posterior half of occiput, antero-central 0.66 of pronotum, spot in concavity near lower 0.5 of pronotum, three stripes on mesoscutum, short stripe on mesopleurum just below subtegular ridge, and broad band on mesopleurum along ventral and posterior margins connected with the spot on antero-lateral corner of propodeum, black; antero-dorsal angle of metapleurum, area near base of hind wing, basal margin, basal area and extreme apex of propodeum, antero-dorsal surface of tergite I, and basal 0.4 of tergites II to V, brown to black, tergite VI and its following ones brownish; hind leg with trochanter, tarsus and the base of coxa and tibia brown to black; front and middle tarsi light brown; wings hyaline.

The females from Peh-tou and Mekaran with anterior margin of pronotum, ventral

margin of mesopleurum, basal parts of tergite II and its following ones, brown to dark brown.

Type ♀: Tienmu 20 XII 1955, S. C. CHIU.

Paratypes 3♀♀: Hsinchu (Mekaran) 1 ♀ (20 VIII 1928, J. SONAN); Pehtou (Hokuto) 1♀ (31 I 1931, J. SONAN); Taipei 1 ♀ (11 XII 1957, K. S. LIN).

The name "*stenus*" means slender, referring to its slender body.

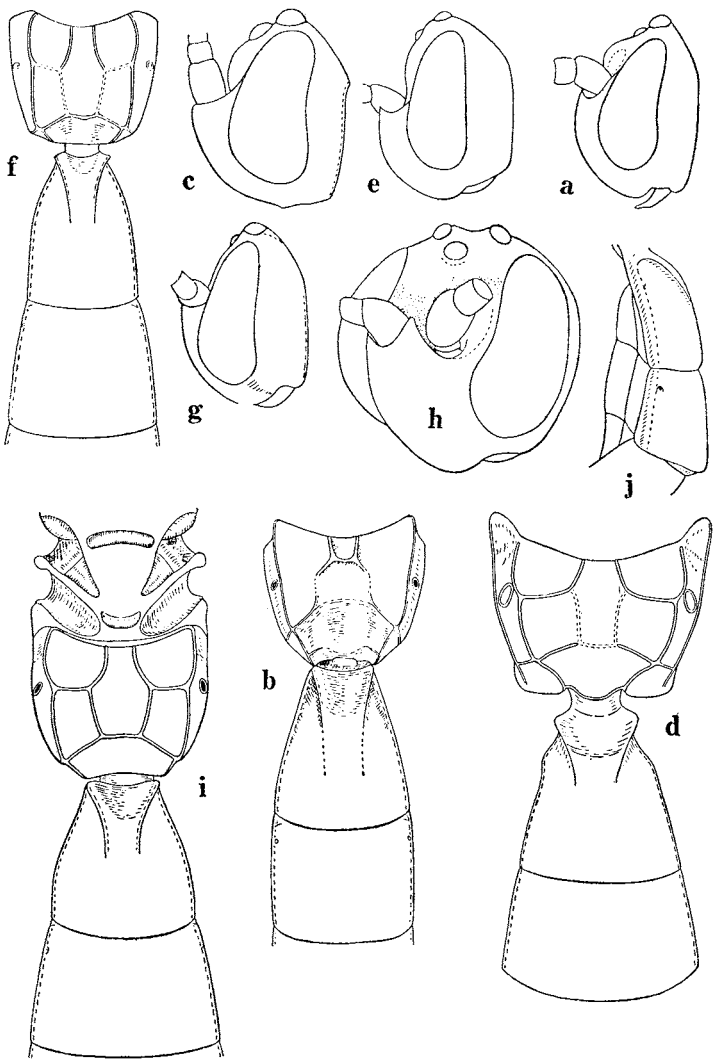

fig. 8. *Exochus*. Head, lateral view, *stenus* sp. n. (a), *longicaudis* sp. n. (c), *leptomma* sp. n. (e), *scutellaris* sp. n. (g); fronto- and dorso-lateral view, *scutellaris* sp. n. (h); propodeum and abdominal tergites I & II, dorsal view, *stenus* sp. n. (b), *longicaudis* sp. n. (d); *leptomma* sp. n. (f), *scutellaris* sp. n., scutellum also (i); abdominal tergites I & II, lateral view, *scutellaris* sp. n. (j).

35. **Exochus longicaudis,** new species

Fig. 8, c-d.

♀: Forewing about 4.5 mm. long. Head about 0.91 as deep as wide, in profile as fig. 8, c; face moderately punctated; frons finely punctated, frontal process without a median keel on its upper part, its lower part with a compress carina which attached ventrally to interantennal process; lateral ocellus separated from eye by about 0.66 its diameter, occiput behind the lateral ocellus centrally rather concave; occipital carina dorsally present; first flagellar segment about 1.2 as long as the second; temple about 0.71 as long as the greatest width of eye; propodeum well areolated, propodeal carinae comparatively strong, basal area and areola confluent, carina bounding apical margins of areola and second lateral area strong (fig. 8, d); hind femur about 2.0 as long as deep; abdominal tergites III and IV broader than the others, tergite I about 1.08 as long as wide; abdominal epipleura vestigial on tergite I and tergite II, wedge-shaped on tergite III and rectangular on its following.

Bright yellow to brownish yellow, abdomen reddish brown; antenna dark brown; frontal area next to antennal socket, triangular area enclosing ocelli, centrally concave area and posterior half of occiput, antero-central part and a triangular spot on lateral concavity of pronotum, three stripes on mesonotum, transverse band on subapico-dorsal margin and a round spot on lowerly posterior corner of mesopleurum, transverse band on basal area and first lateral area of propodeum, extreme base of hind tibia, basal 0.4 of tergite I, basal 0.25 of tergite II, and tergite III, black; wings hyaline.

The paratype female (head missing) body reddish brown, black markings on pro notum extended from antero-central part to antero-ventral half, on mesoplerum more extensive except for a roundish spot on its antero-centrally, scutellum black with lateral and apical margins yellow; basal 0.2 of abdominal tergites II and III black.

Type ♀: Taipei 11 VII 1958, S. C. CHIU.

Paratype ♀: Hsintien (Shinten) 11 IV 1922, J. SONAN.

The name "*longicaudis*" refers to the comparatively long ovipositor.

36. **Exochus leptomma,** new species

Fig. 8, e-f.

♀: Forewing 3.5 mm. long. Head about 0.95 as deep as wide, in profile as fig. 8, e; face with moderately coarse punctures; frons finely punctured, slightly convex, its lower part with a sharp median ridge which is attached ventrally to interantennal process; lateral ocellus separated from eye by about 1.27 its diameter; occipital carina absent dorsally; first flagellar segment about 1.63 as long as the second; head in profile with temple about 1.1 as long as the greatest width of eye; propodeum incompletely areolated, propodeal carinae low but distinguishable (fig. 8, f); hind femur about 2.4 as long as deep; abdominal tergites broad; tergite I about 1.94 as long as wide, with a pair of longitudinal, median carinae which becomes absent on its apical 0.5; epipleura of tergifes I and II vestigial, of tergite III and the following tergites erectly rectangular.

Black. Very small spot on the top of eye yellow; legs reddish brown, coxae and trochanters dark brown; wings hyaline.

Holotype ♀: Wushe (Musha) 18 V–15 VI 1919, T. OKUNI et al.

The name "*leptomma*" means narrow eye, referring to the relative ratio of eye and temple.

37. Exochus scutellaris, new species

Fig. 8, g–j.

♀: Forewing 5.5 mm. long. Head about 0.89 as deep as wide, in profile as fig. 8, g; face with coarse punctures; frons finely punctured, slightly convex, its lower part with a strong, compressed, median ridge which is attached ventrally to interantennal process; lateral ocellus separated from eye by about 1.1 its diameter; head as seen in profile with temple about 0.9 as long as the greatest width of eye; occiput behind the lateral ocelli very weakly concave, occipital carina absent dorsally; first flagellar segment about 1.5 as long as the second; propodeum well areoleted, propodeal carinae moderately strong (fig. 8, i); hind femur about 2.4 as long as deep; abdominal tergites broad. tergite I about 0.91 as long as wide, its longitudinal, median carinae present only basal 0.5, in profile as fig. 8, j, tergite V and the following becoming gradually narrower; tergite VI about 0.74 as long as wide; epipleura of tergites III and following ones comparatively broadly rectangular.

Black. Upper 0.4 of face including interantennal process but not reaching margin of eye, subtriangular spot at the top of eye, scape in front, palpi, dorsal margins of pronotum and mesopleurum, tegula, scutellum (except baso-central half brownish), postscutellum and legs, yellow; antenna (except scape) and apical margins of tergites I to V brown; hind coxa yellow, gradually brown toward base; hind tibia tinged with fulvous; apex of first three segments of hind tarsus and all of the fourth and fifth segments light brown; wings hyaline.

Type ♀: Taipingshan (Taiheizan) 25 VIII 1923, J. SONAN.

Paratypes 2♀♀: Taipei 1♀ (20 III 1958, S. C. CHIU), Tienmu 1 ♀ (20 XII, 1955, S. C. CHIU).

The two paratype females with darker color pattern, differing from type in having dorso-posterior corner of pronotum and apical half of dorsal margin of mesopleurum yellow; abdominal tergites entirely black; front coxa black with extreme apex yellow; middle coxa basal half brown; hind coxa black; scutellum baso-centrally black; hind tarsal segments brownish.

The name "*scutellaris*" refers to the scutellum, because it has a conspicuous yellow spot.

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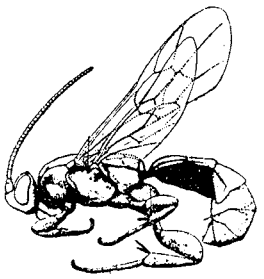
第二十號

臺灣產Metopiinae姬蜂之分類研究

（膜翅目：姬蜂科）

邱　瑞　珍



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